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The Mining Journal

LONDON, NOVEMBER 11, 1960

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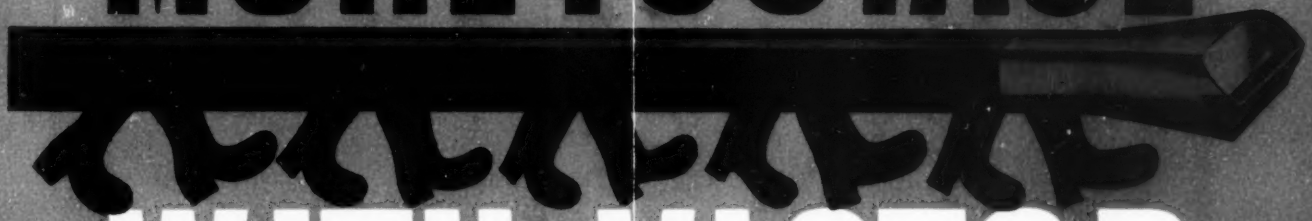

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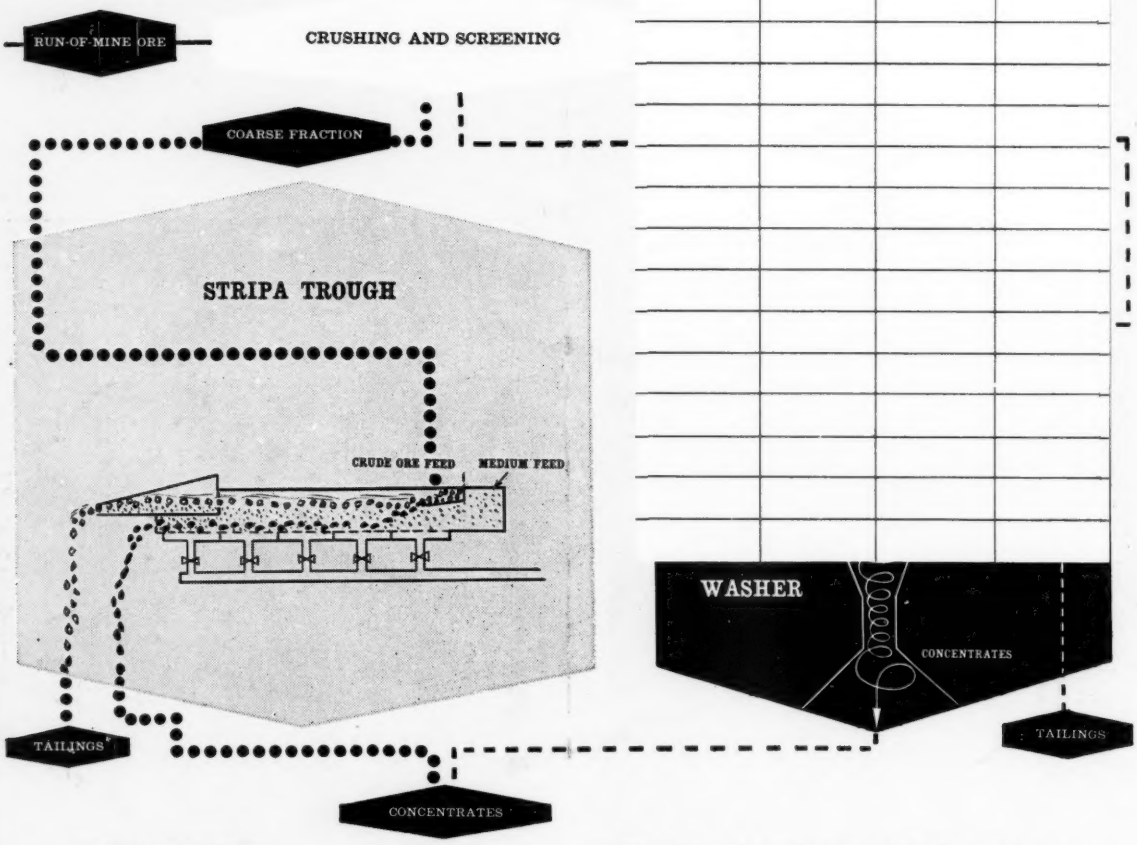

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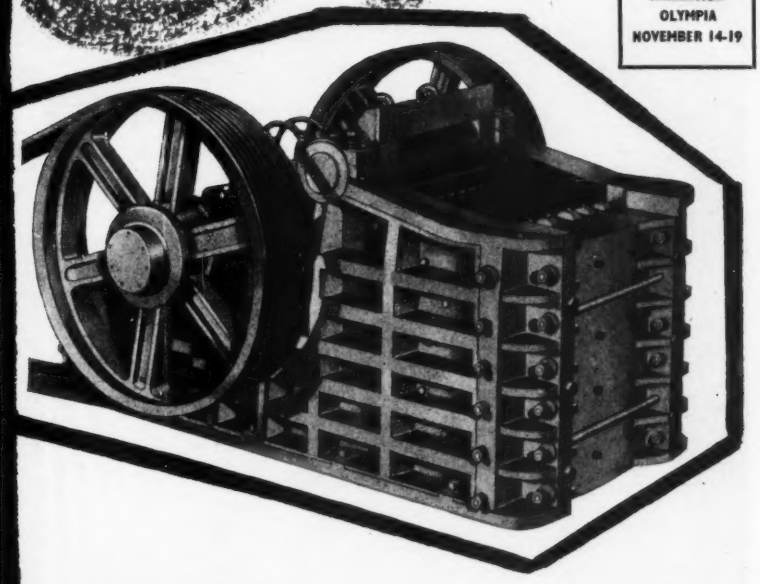

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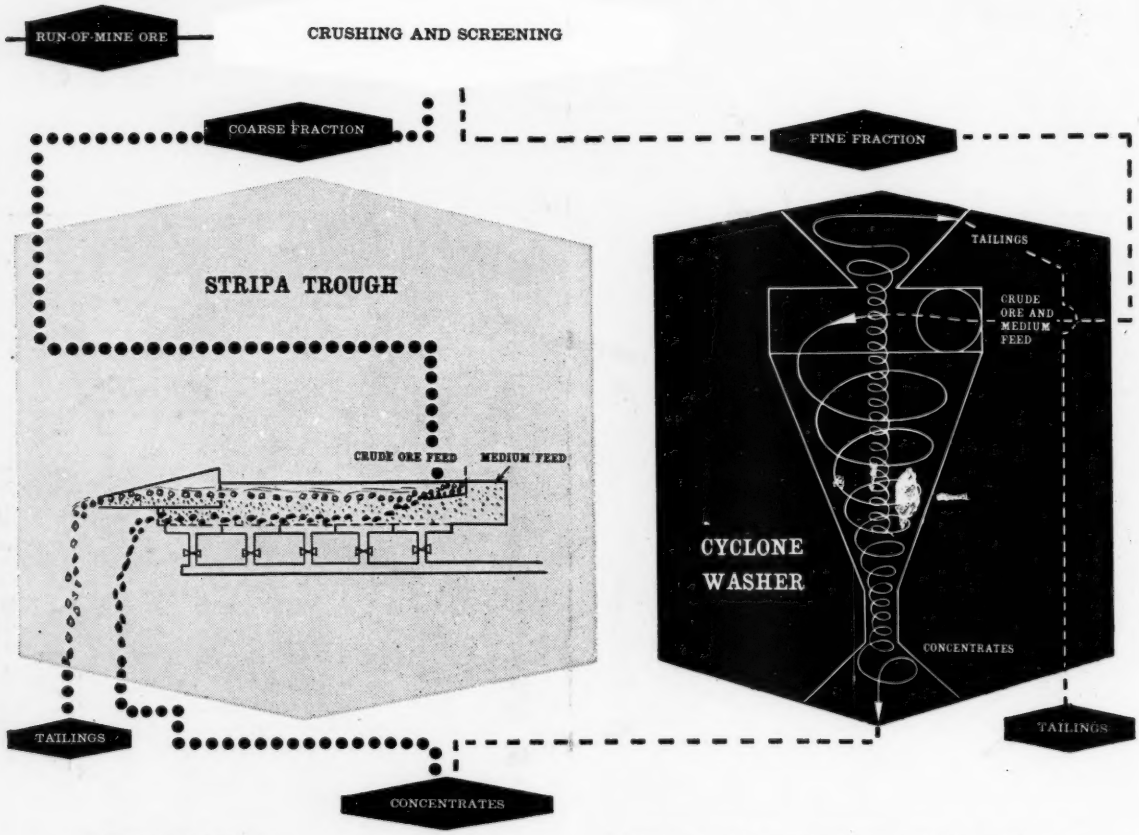

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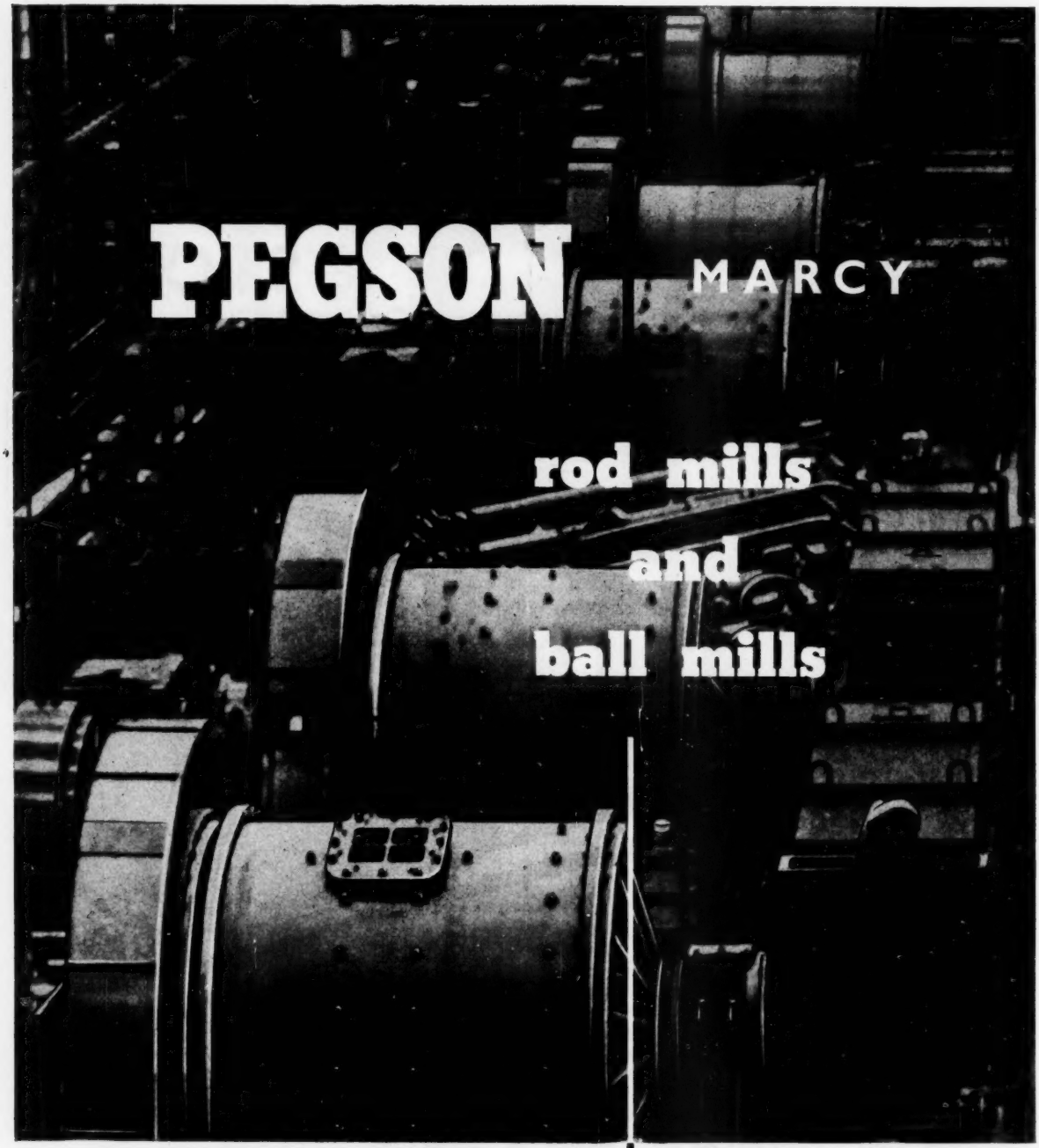

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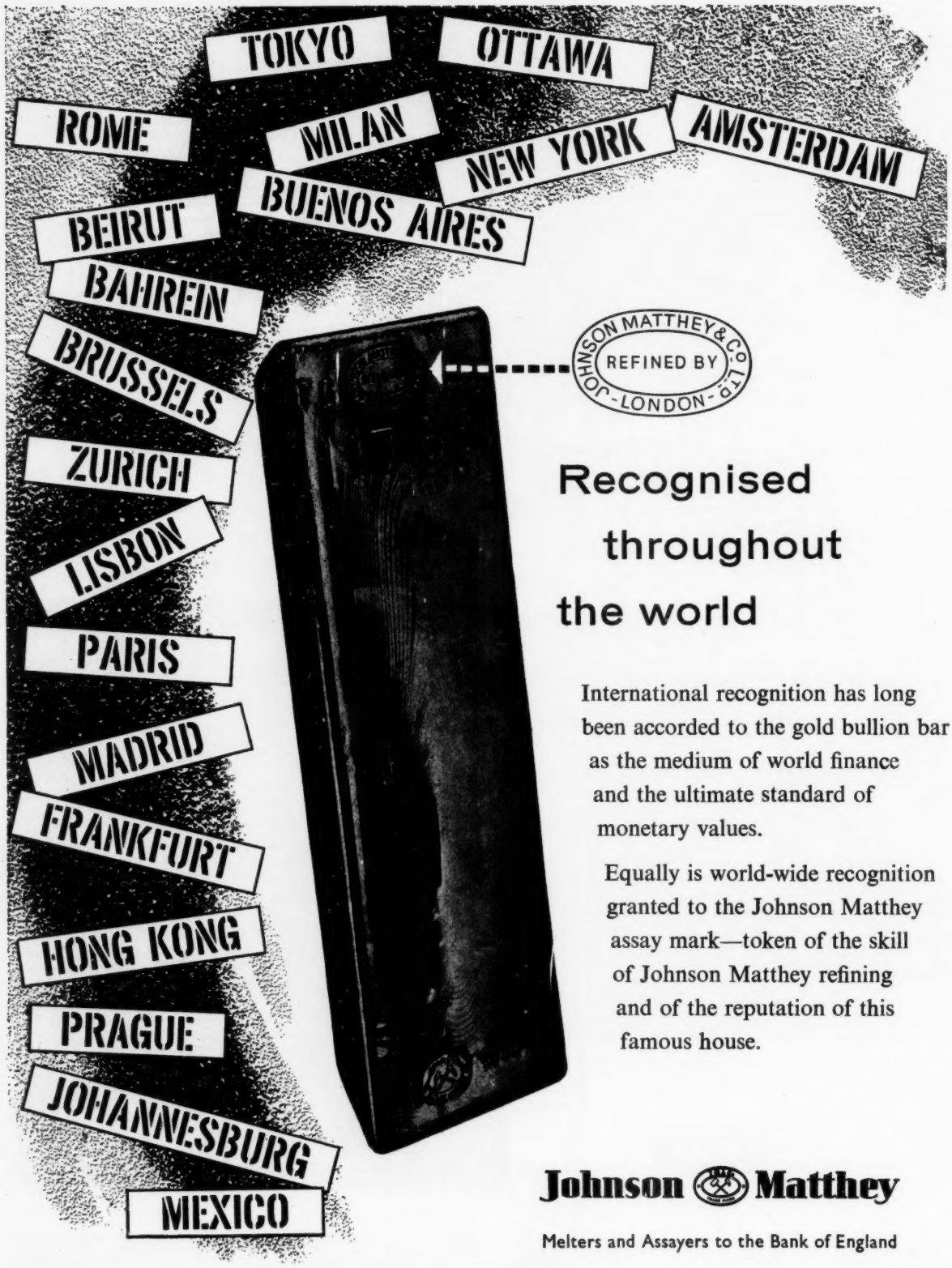

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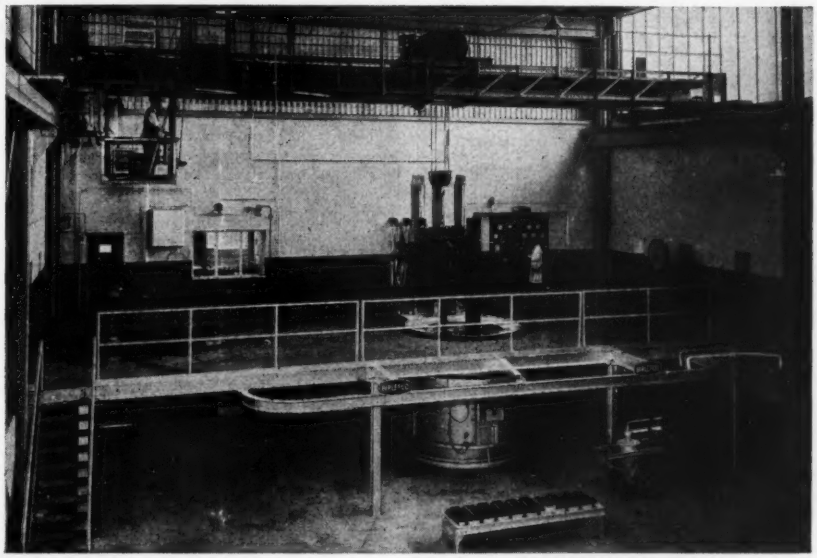

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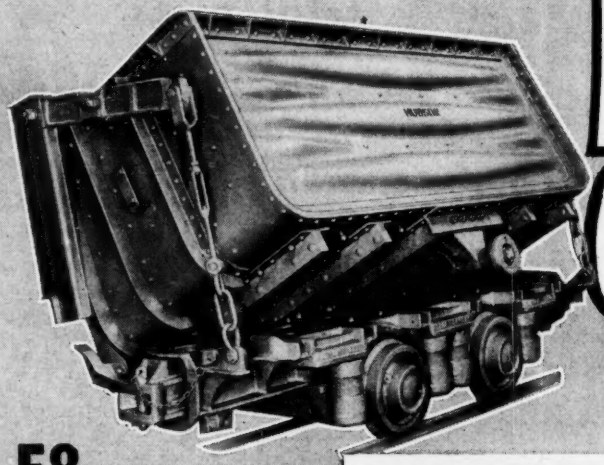

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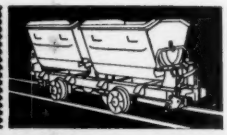

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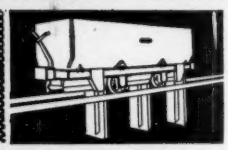

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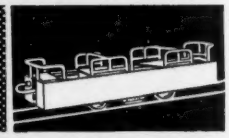

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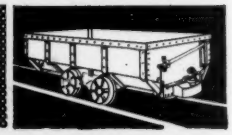

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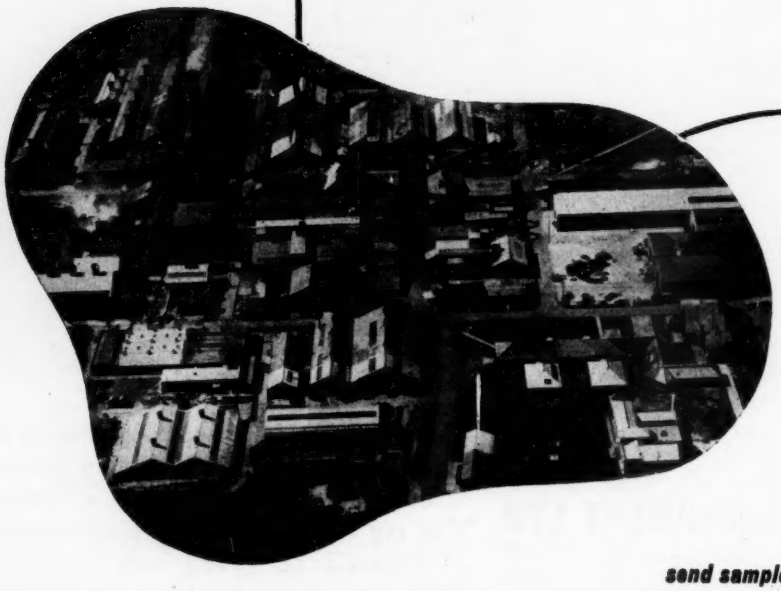

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The Mining Journal

London, November 11, 1960

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The Thirty-Five Dollar Question

ONE of the most urgent, and not the least formidable, of the many tasks confronting America's new President is the restoration of world confidence in what was once regarded as the "almighty" dollar, whose traditional strength is being sapped by the persistent drain on the national gold reserves. Since January, 1953, America's adverse balance of payments has resulted in an outflow of nearly $4,000,000,000 of gold. This year alone the loss has so far amounted to some $1,297,000,000. On Thursday last week the gold stock fell by $175,000,000 the largest loss ever suffered in a single day. The U.S. Treasury's gold stock now stands at $18,159,000,000, of which about $12,000,000,000 serves as a metallic reserve for Federal Reserve bank notes and deposits of member banks.

By any normal standards America's gold reserves are still immense, but it is becoming only too apparent that they are by no means inexhaustible, particularly when it is borne in mind that, apart from the gold losses, there has been a substantial increase in the short-term liabilities of the United States, which at the end of 1959 stood at $16,110,000,000 and have since risen further. And, of course, there is the additional pressure to which the dollar might be subjected as a result of panic liquidation by foreigners of dollar holdings of stocks and bonds.

America's payments problem is due to a number of factors, which might be summarized briefly as inflationary trends dating from the Truman Administration, which have priced American goods out of many markets and encouraged importation; restrictions on the entry of U.S. exports into a number of countries; heavy capital expenditure by U.S. companies on the establishment of factories abroad; and, finally, the high cost of economic and military aid which, for the past decade, has amounted to some $3,500,000,000 - $5,000,000,000 a year. For a number of years the excess of commercial exports and other revenue over imports was large enough to mask the heavy cost of foreign aid, but in 1958 the U.S. balance of payments with the rest of the world deteriorated and the outflow of gold began. Recently it has been accentuated by the lowering of interest rates in order to prime the flagging economy, which resulted in an outflow of "hot money" in search of more profitable yields abroad.

Basically, there seem to be three possible directions in which the problem of America's gold losses can be approached. The first lies in bringing the payments situation into better balance by stepping up exports and cutting down both overseas purchases and expenditure on foreign aid. The second is to increase the price of gold by international agreement; and the third, to let the present drain continue and possibly be accelerated, until sooner or later the authorities are compelled to put up the dollar price of gold, possibly by unilateral action.

Since the war the American Government has been consistently opposed to any increase in the gold price, which has remained pegged at its present level since 1934. The Eisenhower Administration has latterly pinned its faith on such corrective measures as export promotion and the application of strong pressure on Western Germany to shoulder a larger share of the burden of foreign aid. The Administration is also giving active consideration to such economies as might be achieved by prohibiting U.S. troops from taking their families overseas with them, as they are at present permitted to do, and reducing further the volume of supplies purchased abroad from overseas bases. It remains to be seen whether such measures can materially assist in stemming the gold flow, more especially if the economy should be in need of further large-scale priming during the coming winter.

The recent flurry in the London bullion market was touched off by fears that a Kennedy Administration, with its emphasis on expansion and "cheap money", would induce a new surge of inflation and hasten the devaluation of the dollar. Mr. Kennedy has since pledged his Administration to maintain the present value of the dollar. He also promised to begin immediate negotiations to ease tariff and quota restrictions abroad on American goods and foreign bans on the flow of capital to the United States and to continue the present Administration's policy of seeking to unload more of the burden of foreign aid. His foreign aid plans, however, call for a major increase of about $1,000,000,000 over two years, with some cuts in military support to N.A.T.O.

It is also difficult to see how the new President's determination to control inflation and preserve the value of the dollar is compatible with a policy which, as indicated in his Election addresses, seeks to stimulate economic growth to an arbitrary percentage figure and which envisages lower interest rates. Moreover, a country which maintains artificial barriers against the entry of foreign goods—e.g., the lead and zinc quotas—and which is under increasing pressure from its own protection-minded industrialists, is hardly in a strong position to persuade other countries to ease their discriminations against American goods. Here, however, the new President has the advantage of being in a stronger position than his predecessor to resist Congress's demands for increased tariffs.

No matter how emphatically the U.S. Treasury continues to reaffirm its policy of adhering to its official price of $35 an ounce for buying or selling gold, the root causes of the present imbalance of payment remain essentially unchanged. Apart from devaluation, there seems little prospect of stemming the flow of gold without resorting to corrective measures of such severity as to jeopardise the entire economy of the Western world. Hence the growing conviction that devaluation cannot indefinitely be deferred, particularly if the Western countries are impelled, for political reasons, to step up the present massive scale of financial aid to the uncommitted and politically backward nations. The election of a Democratic President may well have brought it nearer, despite all Senator Kennedy's pledges of a balanced budget and an honest dollar.

For the time being, Washington's emphatic denials of any intention of devaluing the dollar have damped down the outbreak of gold fever, which pushed the London gold price up to a peak of 290s. on Thursday, October 19. The demand for bullion remains at a high level, however, and the revival of interest in gold mining and gold shares, triggered off by the strain on the dollar, may be expected to continue.

An interesting indication of how Americans themselves are reacting to the dollar crisis is afforded by an editorial in the *Engineering and Mining Journal*, published before the presidential election, in which it is suggested that the time may now be right for an attempt to bolster America's own dwindling domestic gold mining industry—currently operating at a level of about $35,000,000 a year compared with $170,000,000 in 1942, when the gold-mine closing order was put into effect. In advocating a subsidy for newly mined domestic gold our contemporary emphasizes that, with rising labour and material costs, it is questionable how long the $35 price can be held. The subsidy would encourage operators to expand activities by the exploitation of marginal low-grade blocks. In addition, many complex base metal mines with by-product gold would get the additional stimulus they require. Thus a subsidy becomes an investment against the future.

This is an argument which might be commended to the governments of other countries where marginal mines, even with existing subsidies, are waging an increasingly difficult battle against the inexorable rise in costs.

AFRICAN ADVANCEMENT WITHOUT "STRINGS"

From the Rhodesian Copperbelt comes the news that the European Mineworkers had voted in favour of the proposals, put forward by the Mining Joint Industrial Council, to abolish the separate categories of jobs for Europeans and Africans.

In the past, African advancement talks have always concerned the transfer of certain specific jobs from the European to the African category, and could understandably be regarded by the African as gestures of appeasement. However, these newly agreed proposals, whilst likely to have little immediate effect, do provide a solid framework for African advancement throughout the industry and aim to unify the hitherto widely differing wage structures. Though the European Mineworkers' acceptance of these proposals has been received with indifference by the African union, it must serve to relieve the underlying tensions not only within the industry but also in the whole political atmosphere of the Federation. Indeed the Copperbelt, long regarded as the European stronghold of the north, has publicly admitted that African advancement is inevitable and is now prepared, not perhaps without misgivings, to follow these proposals and African advancement through to its final conclusion.

Undoubtedly the Africans will be looking for a rapid implementation of the proposals and on this the whole country will gauge the European's sincerity, not only on this particular issue and on the educational facilities on which its success depends, but also on the wider question of partnership. Thus, the mining companies and the M.J.I.C. must find a compromise. On the one hand there are the demands from the Africans and the knowledge that subsequently the degree of interference in the industry's affairs from an African government would depend on the degree of progress of African advancement at that time. On the other hand, there is the problem of European and African unemployment and the fact that at no stage can they afford to lose the confidence of the European union membership.

It is unfortunate that outside of the industry the problem of African advancement is often over-simplified to the extent that European prejudice appears to be the only barrier to progress. In fact the problem is a triple one composed of mechanization, of direct advancement of Africans to defined European jobs, and the whole structure of the labour complement below the level of first line supervision.

The existing structure based on the European ganger and a team of Africans is the natural outcome of the earlier conditions when the African required a high level

of supervision; but today with the generally improved responsibility of the African worker this is becoming largely outmoded. If the industry is to continue on a sound basis, the framework must be modified to follow the accepted American and European industrial structures with the African assuming a greater responsibility and the position of the ganger largely falling away. Any moves in this direction so far by the companies have been strongly criticized by the European and African unions alike as "job fragmentation". However, it is undoubtedly African advancement in the truest sense and probably in the only sense which the industry can afford. Simply to replace the European workers with Africans would give advancement to a select few and would, with the continued demands for higher wages from the African labourers, be economic suicide.

Apart from the final outcome of African advancement, the acceptance of these proposals by the European Mineworkers is obviously a triumph for the system of negotiation recommended in 1958 by Sir Frederick Leggett. Not only has the M.J.I.C. proved to be a suitable instrument for negotiation between the six mining companies and the union leaders, but also the "Leggett proposals" have ensured that petty disputes have been settled at the right level and have not been allowed to become a major issue affecting the whole climate for the major advancement negotiations.

Although the ballot by the European Union was on the M.J.I.C. proposals, it must also to some degree be regarded as a vote of confidence in the recently much maligned union leadership, and in this respect it is disappointing that the majority was not greater. (Total ballot 3,156 : majority in favour 580.)

LOWER ROYALTIES, HIGHER PRODUCTION

A substantial reduction in Provincial Government royalties on iron ore exports is expected to triple British Columbia's output of this mineral within eighteen months. A new method of calculating government royalties, which came into effect on November 1, reduces the levy in practice from $1 to about 22½ c. per ton of contained iron shipped. To encourage discovery and development of reserves and to ensure future availability of adequate tonnages to meet possible requirements of a West Coast steel plant, the order-in-council also provides for credits against obligations to pay royalty to the government to the extent of any expenditures incurred in exploration, including expenditures made before production is commenced. In any one year, however, such credit may not exceed one-half the royalty payable in that year.

The new order, introduced after detailed discussions with the mining companies and prolonged study of the industry's problems, has removed a number of obstacles confronting present and prospective iron-ore producers, states the *Northern Miner*, while at the same time assuring control by the government of the Province's iron ore resources, as well as a reasonable royalty on ore shipped. As a result, the industry is planning to invest about $30,000,000 in new development, creating an estimated 2,000 jobs.

One major benefit of the reduced royalty is that B.C. iron ore will now be competitive with ore from Malaya, Goa, South America and the Philippines. British Columbia is at present exporting at the rate of about 2,500 tons of contained ore daily to Japan. The industry now expects to increase the volume of these shipments to about 7,500 tons a day. It is understood that Japanese iron and steel importers, mainly the Sumitomo and Mitsubishi interests, are willing to buy 3,000,000 tons of B.C. ore annually.

This transformation of British Columbia's iron ore prospects is a notable example of what can be accomplished by constructive co-operation between government and mining interests for the common good.

R.S.M. ASSOCIATION DINNER

The 76th Annual Dinner of the Royal School of Mines Association was held at the Apothecaries Hall, London, E.C.2, on November 2 under the chairmanship of Mr. W. A. Hardy, president of the Association. The toast of the R.S.M. Association was proposed by the Rt. Hon. Lord Robins, president of the British South Africa Company.

In his response the Chairman drew attention to the great expansion which had been taking place at the R.S.M. as part of the general programme of expansion by the Imperial College of Science and Technology. Not only was the equipment at the School of a very high order, but this had also contributed to a substantial increase in the number of post-graduate students, who now constituted more than 35 per cent of the student body.

The R.S.M. Association was recognizing this development by asking post-graduate students at the School to elect a representative to the R.S.M. Association in addition to the existing representation of undergraduates. The Association looked forward to welcoming post-graduates into membership.

The Chairman also revealed that Dr. J. H. Watson, the Association's indefatigable secretary, was in the process of compiling an up-to-date register of Association members, which he expected would be ready around the middle of 1961.

The Chairman also drew attention to the rapidly changing political and social climate, in which those now leaving the R.S.M. for the first time were so often having to work in territories which had recently, or were about to, achieve self-government. He urged that more thought should be given to providing the student with an understanding of contemporary history.

Students of his generation had often had to work in a very different political climate from those now leaving school and it was very necessary that the young graduates of today should understand the changes which had been taking place. He was not suggesting that the School itself should institute such courses but that opportunities should be made for the student to avail himself of the ample facilities which existed for such study in London.

The Toast of the Guests was proposed by Mr. P. Best, Vice-President of the Association and was responded to by Mr. W. R. Cumming, Official Secretary to the Australian High Commissioner in London.

Guests of honour, in addition to Lord Robins and Mr. Cumming, included Professor David Williams, President of the Institution of Mining Metallurgy; Sir Patrick Linstead, Rector of Imperial College; Professor J. C. Mitcheson, Dean of the Royal School of Mines; Mr. H. Elder, Headmaster of Merchant Taylors' School; Mr. B. W. Kerrigan, Secretary of the Institution of Mining and Metallurgy; Mr. J. M. Corin, Secretary of Imperial College; Mr. R. A. Alldred, Secretary of the British Overseas Mining Association; Mr. A. M. Holbein, President of the Old Centralians; Mr. A. A. Eldridge, President of the R.C.S. Association; Mr. W. L. Hewlett, Hon. Sec. of the R.C.S. Association; Mr. P. L. Buet, President of the R.S.M. Union and Mr. R. G. Basham, Hon. Sec. of the R.S.M. Union.

The New China in the World Tin Situation

The extraordinary socio-economic experiment now being carried out in Communist China is beginning to produce results. This article, abstracted from a survey published in the August, 1960, issue of "Tin", reviews the effect that the emergence of China as a new industrial power may have on the world tin situation

STEEL production is, of course, the focal point of China's programme of industrial development, and there is no doubt that, with the technical aid of the Soviet Union, China is building up a huge modern steel industry. Indeed, some branches of it may already be in advance of U.S. and U.K. steel-making technology.

The native furnaces which, in the hands of unskilled workers, turned out large quantities of almost useless iron in a frantic effort to meet the target of the "Great Leap Forward" of 1958 have mostly been abandoned. The indications are that in the last two years China has built an iron and steel industry of tremendous vitality, and such is the gigantic size of her labour force, that she could indeed "overtake Britain in fifteen years"—the target set in 1957.

Steel is the structural material needed for every form of modern industrial development, and on China's ability to turn it out will depend how far she can progress industrially and economically in the next few years. And on that, again, will depend how far her people are prepared to go on making sacrifices for the "jam tomorrow".

These two factors will to a great extent determine the tin situation in China in the coming years.

China's Trade in Tin as Key to Production

The tin deposits in China are mainly confined to five Southern provinces, Yunnan, Kwangsi, Kwangtung, Kiangsi, and Hunan. By far the most important deposits are in Southern Yunnan, around the Kokiu area, which is responsible for about 80 or 90 per cent of total Chinese output.

There has been no really reliable news about tin production in China for many years, but it must be accepted that, with Soviet technical aid, mining methods will have improved, and there is no doubt that output has been stepped up in the last few years. Mr. K. P. Wang, Far East Specialist of the U.S. Bureau of Mines, in a survey of Chinese mining progress earlier this year, said that the mineral industries loomed large in the industrial framework as well as the overall economy of the country. They already contributed significantly to the Gross National Product, the 1958 value of mineral output having been about 4.5 per cent of the GNP. The Communist régime fully recognized that the key to China's industrial progress lay in the uncovering and efficient utilization of its mineral wealth, he added.

Mr. Wang emphasized that it was fallacious to assume that the Chinese Communists were not cost conscious and did not believe in efficient practices. Furthermore, great strides had been made in training technicians and industrial workers to supply the manpower needed in mineral development.

No official figures are available for tin production, but official trade statistics reported by the U.S.S.R. and China's external trade figures provide a rough guide. The bulk of tin imports into the Soviet Union come from China, and since 1955 they have been of the order of 15,000 to 20,000 tons a year.

In 1959 Russia took about 20,000 tons—a small increase over the total for 1958, but lower than in 1957. China also puts out some tin to the Western World through Hong Kong, and last year Chinese exports to this source fell to 90 tons from 1,136 tons in 1958. Western Germany took 600 l.tons of Chinese tin in the first three months of 1959 compared with 1,413 tons in the whole of 1959 and only 264 tons in 1958. In the first four months of this year the Netherlands imported 576 tons of tin metal from China compared with 786 tons in 1959 and 497 tons in 1958. Smaller quantities of Chinese tin were imported during 1959 into India 200 tons (312 tons in 1958), Switzerland 145 tons (92 tons in 1958) and Hong Kong 90 tons (1,136 tons in 1958).

Compiling these figures, we obtain the rough picture shown in the table opposite.

We repeat that these figures must be accepted as a very rough guide, but they are probably not far from the truth. If we accept that domestic tin consumption in China is now about 5,000 tons a year, which is the conjectural estimate of the International Tin Council—and a reasonable one—that would put tin production in China at just under 30,000 tons a year.

This may be correct, for having regard to the shift in trade in tin suggested by the exports for 1958 and 1959 it would appear that China is increasing output and exports of tin as part of her general foreign trade drive. The same trend may be seen in the many trade pacts concluded by China with countries in both the Western World and the Soviet *bloc*. "Tin", "Metals" and "Non-Ferrous Metals" occur frequently in the trade arrangements.

Modernization of Tin Mining and Smelting

An annual figure of 30,000 tons for tin production in China was also suggested by Theodore Shabad, a research consultant on the economic development of the Soviet Union and Communist China, in the *American Metal Market* earlier this year. He expressed the view that this has been made possible in part by the expansion of concentrating and smelting facilities at Kokiu and in part by the restoration, which took place in 1958, of the railroad between Kokiu and the North Vietnamese port of Haiphong, providing an easy outlet for Chinese tin.

CHINESE TIN PRODUCTION (Long tons)

Estimated from U.S.S.R. official trade statistics and China's external trade figures

	1955	1956	1957	1958	1959
Domestic consumption*:	3,600	3,600	4,800	5,400	5,400
Exported to:					
Austria			2		
Canada				50	54
Czechoslovakia	—	1,015			98
Egypt		50	403	266	
Finland				20	44
Federal Germany			50	264	1,413
France			—	145	100
Hong Kong			14	1,136	90
Hungary		147			
India				312	200
Japan				110	
Netherlands		15	98	497	786
Sweden		10		464	
Switzerland		73	192	92	145
United Kingdom				560	—
U.S.S.R.	16,633	15,452	21,653	18,995	20,000†
Yugoslavia				55	
Total	20,233	20,362	27,212	28,366	28,330

*Estimated by I.T.C.
†Based on gross imports into the U.S.S.R. from China and other countries of 20,417 long tons.

The British Council for the Promotion of International Trade in its *Chinese Trade and Economic Newsletter* was also enthusiastic about developments at Kokiu. "The modernization of Kokiu was completed during the first five-year plan, and it is now a highly integrated mechanized tin mining and smelting centre," it claimed. "Yunan province is China's chief tin producer, the deposits around Kokiu now being estimated to be larger than those of Malaya."

Whilst the latter statement should be taken with some reserve, it is our guess that tin production in China (Mainland) is now not far short of 30,000 tons a year. And this would mean a twenty-fold increase on the immediate post-war rate of output.

Again little is known about tin smelting capacity in China though it is generally believed that most of Chinese tin ore is shipped to the U.S.S.R. for processing before re-export as metal. Prior to 1932, Chinese tin concentrates were smelted locally into relatively impure metal; this in turn was sent to the refiners in Hong Kong to be re-smelted into a suitable marketable product. In 1935 the Kokiu Tin Smelting Company, a subsidiary of the Yunnan Tin Corporation, established a smelter with a capacity of 2,000 tons of metal a year, to produce a 99 per cent refined tin. The remainder of the crude metal from Yunnan still went to the refineries at Hong Kong or at Haiphong.

According to figures prepared by the U.S. Bureau of Mines some years ago, Chinese smelter production increased from an average of just over 7,000 tons in the years 1925-29, to 10,860 tons in 1939 and a peak of 13,000 tons in 1940. During the years of the Second World War output fell to only an estimated 1,000 tons in 1945.

China Will Need All Her Own Tin

There is no doubt that China is striving to produce every ounce of tin she can to help deal with her balance of payments problems, particularly with the Soviet Union. But it is evident that she must soon face the hard choice of selling abroad a valuable industrial raw material which she wins from her own soil, or putting it to her own industrial use.

At the present time her imports of tinplate are not particularly large, but her commitments in the matter of canned foods arranged in recent trade agreements are heavy. The "great leap forward" in steel production and in the packaging of food for sale abroad will eventually lead to her own tinplate production; particularly in a country seeking to achieve industrial power status.

At the present time the world's greatest industrial power is the United States of America, and to keep the wheels of her great industrial machine turning and to make enough tinplate to pack the food required for her own and her export needs she uses about 50,000 tons of tin a year. Just imagine how she would deal with the situation if she could mine 30,000 tons of tin, or more, a year from her own soil.

A similar dilemma may soon be developing for China. Industrial power needs tin for tinplate, tin for solder, tin for bronze castings, tin for the bearings of heavy and light machines, tin for hundreds of different engineering and chemical processes.

If the extraordinary socio-economic experiment being carried out in the New China does succeed in the coming years there is no doubt as to what will happen to the tin which lies in her own soil.

And if the industrial development of the Soviet Union achieves the level of that of the United States—which is the present target—and she is denied access to Chinese tin resources, an acute shortage of tin could quickly develop within the Soviet *bloc*. At the present time increased deliveries of Chinese tin to the U.S.S.R. are among the terms of a trade protocol between China and the Soviet Union signed in Peking at the end of March, 1960. The protocol provides for an increase of 10 per cent on the 1959 trade exchange between the two countries. But how long China can maintain this export trade is anyone's guess.

The use of substitutes must not be forgotten, for there is no doubt that much work in this direction is being carried out by research scientists in both the Soviet Union and Communist China. Indeed manufacturers in Russia are continually being exhorted to economize in the use of tin. And every effort is being made to turn over from hot-dipped tinplate to the electrolytic process.

But for the answer to this problem we can look to the United States. With no tin resources of her own, she has far greater incentive to discover substitutes—yet she has not succeeded so far.

When we look at the broad picture of present day China, ignoring the sound and fury of propaganda, there is no doubt that the people have been plunged into a nationwide campaign to increase production and practise economy with ever increasing enthusiasm. It is evident, also, that results are being achieved.

Yet the whole situation in China is still full of "ifs" and "buts", and the main "if" is the human relations factor. But here one is encroaching on political grounds, and that is not our purpose . . .

Facing facts as they are, it appears to us that China is now producing more tin, and selling more abroad. But as the tempo of her industrial drive increases so also must her tin consumption; and as literacy among the people increases and higher levels of education are reached by the masses so also will the desire for a higher standard of living develop—with its resultant consumption of tin consuming products.

These are the aspects which must be watched in assessing the place of the New China in the world tin situation today—and tomorrow.

TESTING COLLIERY GEAR — II

Non-Destructive Testing of Colliery Gear By Ultrasonic Methods

Ultrasonic waves are of the same nature as ordinary sound waves except that the frequency is too high for detection by the human ear. They obey the same laws as audible sound waves, and their use in non-destructive testing of metals depends on the fact that when passed into a metal the waves are reflected at discontinuities such as slag inclusions, cracks, and cavities, giving rise to echoes which can be detected. This article is the second of three discussing the non-destructive testing of colliery gear and deals particularly with ultrasonic methods, following our previous discussion on radiographic methods. The articles are condensed from the N.C.B. Bulletin 60/219

MOST metals will transmit ultrasonic waves of half a centimetre or less in wavelength over fairly long distances and flaws are detectable provided they are large in relation to the wavelength of the transmitted wave motion. Different types of material require different frequencies for optimum results and the usual range of frequencies used varies from about ½ to 5 megacycles/second. In the case of steel the usual frequency is about 2 megacycles/second. The waves can be transmitted, and an echo received, through a length of some 25 ft. of steel shafting.

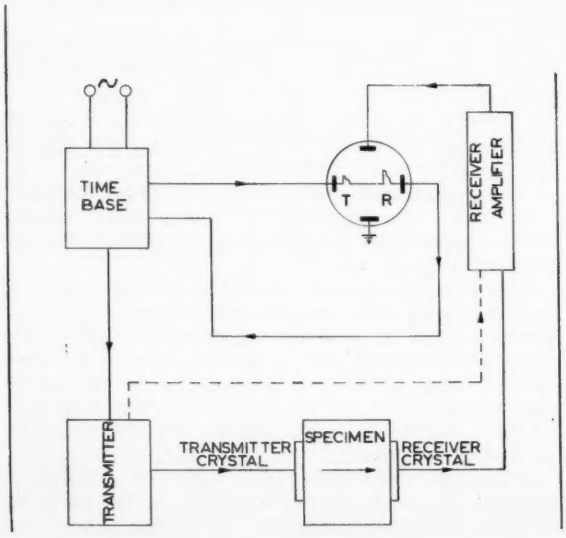
Ultrasonic vibrations are produced by the application of high frequency alternating current to a crystal which may be of quartz cut along a particular axis and, by what is known as the piezo-electric effect, the electrical pulses are converted into mechanical oscillations. The crystal is contained in the transmitter probe of the instrument and the receiver probe works in exactly the opposite fashion—it receives the ultrasonic wave and by a reverse piezo-electric effect converts the mechanical vibrations into high frequency electric current.

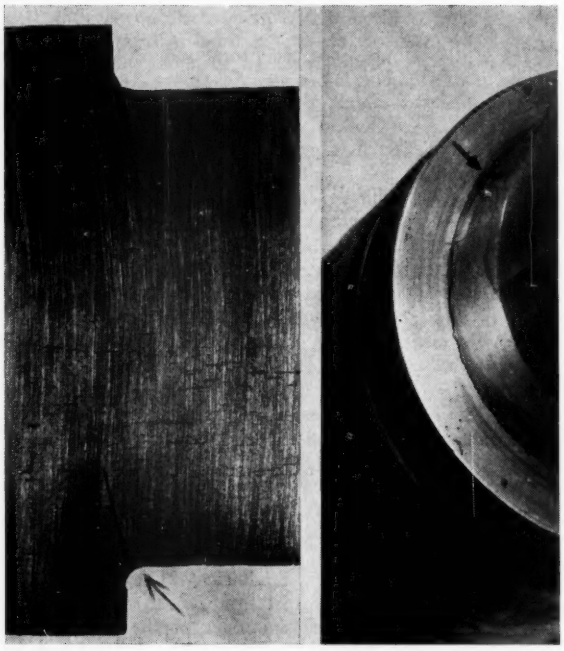
The basic form of the apparatus consists in the first place of an ultrasonic pulse transmitter generating a current of the required frequency which is converted to mechanical vibrations by the crystal in the transmitter probe. After passing through the specimen the waves are picked up by the receiver probe and the receiver crystal converts the wave motion back to electrical energy which is greatly amplified before passing to the oscillograph. The apparatus is so designed that the peak T on the oscillograph corresponds to the start of the passage of the pulse through the specimen and the peak R is the pulse a short time later after transmission through the specimen.

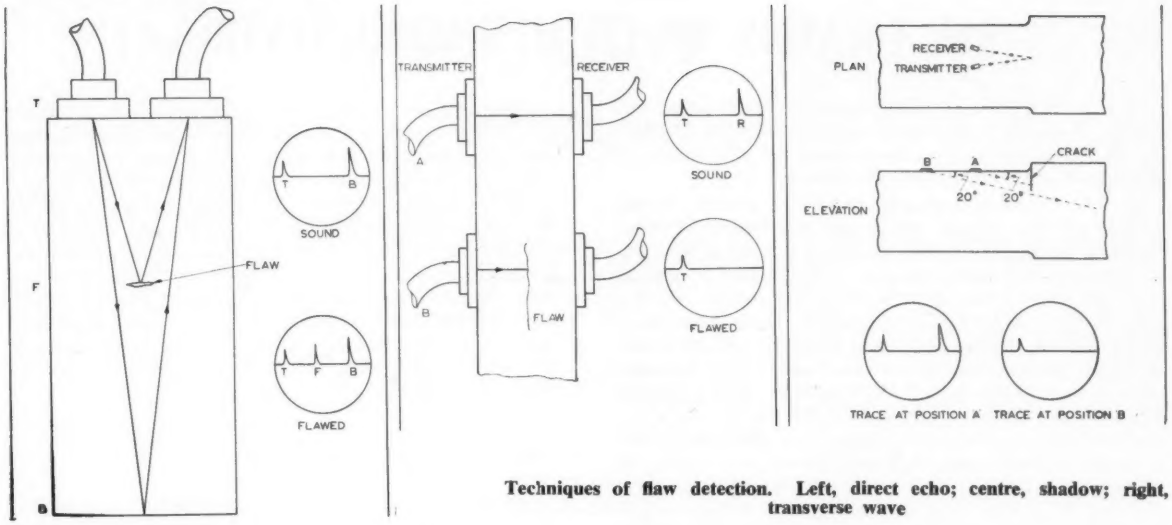
The piezo-electric material is usually either quartz or barium titanate. The former is the more robust and also gives better resolution of the signal but the latter is more sensitive and more versatile. Another material sometimes used is lithium sulphate. Probes can take many forms including, for example, single transceiver probes incorporating in one instrument both the transmitter and receiver. The diameters of the crystal plates depend upon the frequency to be used and other factors. Both single and double probes can be obtained in various angles and shapes. It is desirable to have instrument-shop facilities for making up probes for special purposes depending upon the shape and accessibility of the article to be scanned.

Although the apparatus appears to be complicated it is not difficult to use and requires only a mains supply of electricity (10 amp. 240 volt a.c.). It is very adaptable and can be used in a wide variety of circumstances—but not underground, because of safety considerations. It is an ideal instrument for *in situ* testing of heavy shafts and

Below is a schematic diagram of ultrasonic apparatus. Above, in centre of page, is shown at left a section through a crack indicated by the arrow (at right) at fillet in crank pin







Techniques of flaw detection. Left, direct echo; centre, shadow; right, transverse wave

similar equipment which cannot easily be stripped for visual examination.

Techniques

The ultrasonic flaw detector can be used in numerous ways; but only the three methods of most importance for use within the National Coal Board are briefly described as follows :—

The direct echo technique is undoubtedly the most important method of test and is based upon the time interval between the transmission of an ultrasonic pulse at the chosen surface and the return of echoes from the far surface and also from any discontinuities that may be present in the path of the pulse.

The principle is illustrated in its simplest form by considering a situation where the transmitter and receiver probes are both placed in contact with one surface of the item under test, and the reflected pulses return to the surface from the far boundary, shown by peak B on the oscillograph, or by an internal flaw shown by F. With a linear timebase and denoting deflections on the graph by T′. F′ and B′,

$$\frac{T'\,F'}{T'\,B'} = \frac{T\,F}{T\,B}$$

In nearly all cases, T B is known or can be measured so that the position of the flaw can be readily determined.

The shadow technique is used when both ends of the specimen under test are close enough together and it is possible to transmit from one surface and receive on the other. The method depends upon the shadow effect produced when a flaw lies in the path of the ultrasonic beam, no deflection—or a greatly reduced one—being obtained due to the fact that the interior flaw has reflected the beam

The transverse wave method of testing differs from those described above in that transverse (shear) waves are propagated instead of longitudinal waves. The transmitting and receiving probes are mounted in Perspex blocks under such conditions that only transverse waves enter the solid along a line at an angle, e.g. at 20 deg., to the surface. The actual angle depends on the angle of incidence of the primary beam, which may vary from 10 deg. to 45 deg. One advantage of this method is that the beam has a small angle of spread (7 deg.). It should be noted that the velocity of these waves is only half that of longitudinal waves, and the instrument time base must be varied accordingly.

Many records obtained are complicated (for example those from steam winder drum shafts with their numerous section changes for provision of eccentrics, keyways, etc.), and careful study of the records in relation to drawings of the specimens being tested is necessary. In some cases two or more examinations may be necessary before issuing a report, but on the other hand a major flaw is always immediately discernible. Much experience in interpretation is necessary and special attention should be paid to the possibility of spurious echoes.

Applications

The direct echo method of test is applicable to long shafts but in practice is almost invariably complicated by the contours of the shaft. An example of the graph obtained from a typical headgear pulley shaft shows that changes of section, ends of keyways, etc., all give rise to reflections. The examination is always much more satisfactory when tests can be carried out on each end of a shaft : an accurate drawing of the item under test should be available.

The shadow technique is employed for shorter items such as crank pins and is especially suitable for welded seams and plates where lamination is suspected.

As an example, a serious defect in a crank pin was discovered in a routine examination, and on lifting the top bearing cover the crack was barely discernible by visual examination, and in all probability it would have been missed if one had not been forewarned : the use of a magnetic crack detector confirmed the original opinion.

The transverse method of test is especially useful for sending waves along shafts when the ends are inaccessible and for a detailed study at the ends of keyways and the like. For special applications probe heads may have to be made for use on curved surfaces, etc.

The transverse wave technique can also be used for testing welds, for examining riveted seams in boilers, and for numerous other applications.

THE LOCATION OF CZECH MINERAL CENTRES

A SURVEY gives full details of the location and scope of mineral reserves and processing plants in Czechoslovakia. Main details of this report, as they affect individual mined materials, are :

Iron Ore : Some three-quarters of the present annual Czech iron ore output, which last year stood at about 3,000,000 tonnes, comes from reserves in eastern Slovakia, to the north and west of Kosice. Siderite with an average iron content of from 32 to 38 per cent is mined. Further deposits are located in the Bohemian Basin, to the south of Prague, in the Beroun area, these being of inferior quality and high phosphorus content; of limonitic and hematite types, they contain some 37 per cent iron. With a planned 1960 ferrous products target of 4,700,000 tonnes of pig-iron and 6,800,000 tonnes of raw steel, these levels are to rise to 7,600,000 tonnes and 10,500,000 tonnes, respectively, by 1965. Czechoslovakia is mainly reliant on foreign ores for smelting or for improving the quality of indigenous ores to be smelted. Ore imports from Russia, China and Sweden are of great importance and even the Kosice Ironworks, " Hutny Kombinat ", situated as it is near the main native ore reserves, will use almost exclusively imported Russian ores.

Manganese ores : Manganese ores are mined at Kisovce and Svabovce in north-eastern Slovakia, almost the entire national production coming from these areas. Output has now fallen to some 165,000 tonnes annually from a 1954 level of 252,000 tonnes and even home demand can be only partially covered.

Magnesite : Some 50,000,000 tonnes of magnesite are estimated to be deposited in Czechoslovakia. About 400,000 tonnes of magnesite, or a quarter of the total for the whole of Europe, is believed to have been produced in Czechoslovakia in 1959. Virtually the entire production is mined along the Hungarian border in southern Slovakia. Apart from the Banko mine, an open-cast unit which is the biggest single magnesite mine in Europe, there are rich deposits at Lucenec, Lubenik and elsewhere to the west of Kosice, near which town the Banko mine is situated. Magnesite processing plants have been erected at Lubenik, Podrecan and Tahanovce.

Copper ores and pyrites : Copper ores and pyrites are found in the Slovakian Ore Hills and in the foothills of the Minor Carpathians, in western Slovakia, and pyrites alone in the Bohemian Basin. Production, however, covers only a small fraction of industrial demand and although ore-field development is planned for the 1961-65 period, output at present is little above the 1937 level of 700 tonnes of copper ore and 18,000 tonnes of pyrites annually. Electrolytic copper is produced at Krompach in Slovakia and other copper at Povrly and Klatovy.

Antimony ore : Czechoslovakia is Europe's number one producer of antimony ores, it is claimed, although no up-to-date production figures are available. Production is exclusively in mid-Slovakia.

Lead ore : Lead is located mainly in the Pribram and Kutna Hora regions, with further reserves in southern Moravia and mid-Slovakia. Output is stagnant, production for last year being at 1958 levels (see *Mining Journal*, September 16). Lead is processed at plants in Pribram itself and made into alloys at Velvary and Kamenice.

Graphite : Graphite mined in southern Bohemia and northern Moravia is stated to be sufficient to cover total national demand.

Quicksilver : This metal is mined in the Slovakian ore area and accounts for some 1 to 2 per cent of total European production. Output is reported to be stagnating.

Other minerals : Wolfram ore is located in the Slovakian Ore Hills, tungsten content in the total annual production being between 2 and 3 quintals. Gold is mined at Koudny and Libcice in Bohemia and in the Banska Stiavnica area of mid-Slovakia, Bohemian production accounting for 60 per cent and Slovakian output for 40 per cent of the several hundred kg. produced annually. Silver output, almost entirely from mid-Slovakia, amounts to 3 to 4 tonnes annually. Small quantities of nickel ore are found in southern Bohemia and of tin ore in Slovakia. Imported minerals are used for the operation of Czechoslovakia's " Klement-Gottwald " nickel plant and aluminium plants at Ziar nad Hronom, Bridlincna and Sumperk.

The Coal Industry

Further details isued at the same time show that some 53,000,000,000 tonnes of hard coal are now believed to be located in the Ostrava coalfields of Czechoslovakia, from which 80 per cent of total hard coal output now originates and which last year produced some 24,100,000 tonnes. Further reserves are of 190,000,000 tonnes in the Kladno area (1959 output : 3,000,000 tonnes) and as much as 14,000,000,000 tonnes in the almost neglected Plzen coalfields (1958 output : 900,000 tonnes). Combined hard coal reserves in the so-called Trautenau area on the Polish border and the reserves near Brno total 66,000,000 tonnes, 1958 output being 643,000 tonnes from the former area and 400,000 tonnes from the latter. In the field of brown coal, some 70 per cent of current output comes from fields in north-western Bohemia in the Most and Teplice region, these being based on reserves of some 10,000,000,000 tonnes and yielding some 38,000,000 tonnes in 1958. Brown coal reserves situated between Karlovy Vary and Cheb near the German border are estimated at 1,000,000,000 tonnes, while further important reserves are found at Handloya and Modry Kamen in Slovakia. Geological surveys for brown coal have been concentrated on north Bohemia and the mineral-rich Slovakia.

Mineral Imports Up

An observer at Czechoslovakia's Second International Fair, held at Brno in September, reports that " Metalimex ", the State trading corporation responsible for the country's purchases and sales of all minerals, was presenting itself in a much more active role as a buyer than a seller. This is due to the continued expansion of Czechoslovakia's engineering industry, which has grown by 500 per cent during the past twelve years and is to be increased by a further 75 per cent under the third Five-Year Plan ending in 1965.

It was stated by " Metalimex " that Czechoslovak imports of ferrous and non-ferrous ores and metals, in raw or semi-processed form, had risen at the following rate : 1950 100, 1959 371, 1960 423. The figure of 798 is foreseen for 1965. The main increase has been in respect of iron ore, but the index figures also cover manganese, copper, aluminium, lead, zinc, nickel, and other ores and metals.

As might be expected, a large part of these mineral imports has been derived from other Communist countries. This trend will continue, but at the same time imports from the Free World will also be expanded under the coming Five-Year Plan, and by 1965 they should be at least double those of 1950.

MINING MISCELLANY

Among over 20 contracting firms from many parts of the world who have registered as bidders for the construction of Ghana's Volta river dam and power-house project at an estimated cost of £60,000,000 to £70,000,000, are the British firms Taylor Woodrow, Sterling Astaldi and Parkinson Howard. Other bids submitted came from five U.S. firms, three each from West Germany and France, two from Italy and one each from Sweden, Denmark and Switzerland. Four firms registered in Ghana will also compete, of which one, the Ghana National Construction Co., is a joint Ghanaian/Israeli enterprise. Tenders must be submitted by next January and the contract will be awarded next April.

★

It has been announced in Tokyo that six leading Japanese smelters have concluded a contract to import 5,000 tons of copper concentrate with a 30 per cent copper content from Cuba, the entire amount to arrive in Japan during November, price being at current world market level.

★

According to *Al Ahram*, Dr. Aziz Sidhi, Central Minister of Industry in the United Arab Republic (Egyptian Region) has issued a decree for the establishment of a zinc and lead plant in Suez, with an annual productive capacity of 10,000 tons of electrolytic zinc and 1,500 tons of lead. It is estimated that the project will cost £E.2,500,000 half of which will be paid with foreign currency.

★

It is reported in *Mineral Trade Notes* that officials of the French Government in Algeria and La Societe de Djebel Onk plan to exploit an extensive phosphate-rock deposit at Djebel Onk in Eastern Algeria, 20. km. from the Tunisian border. The deposit is estimated to contain 500,000,000 to 1,000,000,000 tons of phosphate rock, and consists of a layer of phosphate 30 and 35 m. thick, covered by a 0- 120-m. thick layer of limestone and sand. The ore at Djemi-Djema, the first section to be developed, averages 57 per cent B.P.L. Construction is expected to be completed in mid-1962, and the plant should reach full-scale operation by mid-1964. Marketable phosphate (75 per cent B.P.L.) production is to be about 500,000 tonnes in 1962, 600,000 tonnes in 1963 and 800,000 tonnes in 1964.

★

The chairman of Yacimientos Carboniferous Fiscales, Argentina, has stated that output at the Rio Turbio mine this year will be about 300,000 tons, 210,000 of which will be shipped to Buenos Aires and 90,000 consumed locally at Rio Gallegos and Rio Turbio.

★

The reserves of the Cerro San Isidro iron ore deposits in Venezuela total over 350,000,000 tonnes, according to preliminary estimates of the Ministry of Mines, which adds that it has annulled the contract granted to a private concern to exploit the region. The hills near Las Pailas and San Joaquin have reserves amounting to 250,000,000 tonnes, while Venezuela has other promising deposits, including those at Aguas Calientes and Los Barrancos.

★

The Minas Gerais Commission to promote exports reports from Brazil that it has received an offer from the Polish Diplomatic Service to import 1,000,000 tonnes of ore; Poland will require 10,000,000 tonnes in all.

★

Cuba and Roumania recently signed a five-year commercial agreement in Havana, under which Cuban exports to Roumania will include iron, chrome and nickel.

★

The Swiss-owned Austrian aluminium producer, Salzburger Aluminiumgesellschaft, of Salzburg, plans an expansion of annual production by 40 per cent, to 10,000 tonnes of refined aluminium.

★

Reserves of copper-magnetite ore are reported south of the Russian republic of Kazakhstan. A first site has estimated reserves of 150,000,000 tons of ore, while a second deposit, of unknown dimensions can be mined by opencast methods. Both ore sites are situated close to the future Gasli-Frunse-Alma-Ata natural gas line, and will thus be able to operate cheaply. It is further reported that coal deposits of about 10,000,000,000 tonnes have been found 300 km. from the Kazakhstan capital of Alma-Ata, with seams up to 18 m. thick.

★

The Italian concern, Montecatini, recently opened two new plants in Sicily, one at San Cataldo producing kainite for processing to potassium and other products at a new plant at Campofranco. The San Cataldo kainite deposits, which have a potassium content of 12 to 17 per cent, will make Italy free of potassium imports. Seams up to 30 m. thick are situated between rock salt layers, and mining, which is fully mechanized, is at a depth of 500 m. San Cataldo mined output is 3,000 tonnes daily, and production from Campofranco 20,000 annually. These plants will feed the Porto Empedocle works of Akragas, the subsidiary of Montecatini, where 200,000 tonnes of synthetic fertiliser are to be produced annually.

★

Munir Baaba, the leader of a Libyan delegation to Western Germany, has stated that his country is interested in German investment in mining of iron ore and potash in Libya.

Formation of Morgan — Mintex

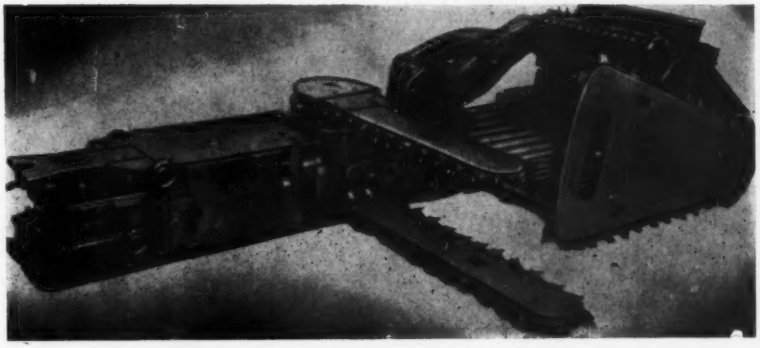
The Morgan Crucible Co. Ltd., and British Belting and Asbestos Ltd., have registered a new company named Morgan-Mintex, Ltd. This new company will manufacture sintered friction materials, which will be sold under the registered trade mark Sinterlink. The materials have been developed by The Morgan Crucible Co., and are produced at their factory in Wandsworth, where the new company will be located. Sales throughout the world will be handled by the Mintex Division of British Belting and Asbestos Ltd., as sole concessionaires.

The formation of the new company was announced on Monday of this week, when, at a reception at the Mayfair Hotel, guests were welcomed by Mr. H. I. Matthey (Morgan Crucible Co.), chairman of the new company. Including Mr. Matthey, the directors of Morgan-Mintex Ltd., are: Mr. J. H. Dawson, and Mr. I. Weston Smith, of Morgan Crucible Co., and Mr. R. A. Barber and Mr. P. H. A. Mount, of British Belting and Asbestos Ltd.

Sinterlink consists largely of sintered bronze particles which provide the friction grip and at the same time transfer heat rapidly through the lining and metal-to-metal bond to the backing plate. This keeps the lining surface stable and cool Small particles of free lead and graphite in the material provide a meaure of dry lubrication which both reduces wear and stabilizes the friction.

By the sintering process the even distribution of friction raising additions such as ceramic particles is possible. The sintering process can also provide pores adequate for the escape of excess oil from operating surfaces in many wet applications.

This A.B. Meco-Moore coal cutter-loader weighs approximately 10 tons, and employs Sinterlink plates. These machines loaded nearly 10,000,000 tons of coal in 1959



The Public Works Exhibition, 1960

The 17th Public Works and Municipal Services Congress and Exhibition, is to occupy the large halls and galleries of Olympia from November 14 to 19. Those equipments to be displayed that are of particular interest to the mining industry are described briefly in the following notes.

A comprehensive range of lightweight, high-speed industrial diesel engines ranging from three to six cylinders and 10 to 105 b.h.p. will be shown by *Perkins Engines Ltd.* Perkins engines will also be shown by a wide range of industrial equipment manufacturers who fit the Peterborough-made units as first equipment, namely Armstrong Whitworth (Metal Industries) Ltd., Ransomes & Rapier., Bray Construction Equipment Ltd., Marshall Sons & Co. Ltd., E. Boydell & Co. Ltd., Barford Ltd., Thos. Green & Sons Ltd., and George Cohen Sons & Co.

One of the most interesting exhibits on the stand of *Atlas Copco (Great Britain) Ltd.* at the Public Works Exhibition will be the PR600 rotary screw portable air compressor. This compressor consists basically of two accurately intermeshing helical rotors surrounded by a closely fitting casing. The PR600 delivers 600 c.f.m. at a normal operating pressure of 100 p.s.i. and is consequently capable of operating two wagon drills of the type shown.

Among the big selection of mining equipment which will also be on view at Olympia will be the BMP31 bencher, a record breaker in Sweden. The BMP31 has an effective feed length of 70¼ ins. and weights 89 lbs. excluding the rock drillsteel. Contracted it measures 97⅛ ins. and extended 156½ ins., its piston diameter being 2⅜ ins. The by now popular Lion and Tiger rock drills (both of which are being used to drive the Mont Blanc road tunnel) will be included in the exhibit, one of the Lions being mounted on an integral pusher leg. Atlas Copco have world wide selling rights for Sandvick Coromant drill steels, a range of which will be displayed. The mining section of the Atlas Copco stand will be rounded off with a display of winches specially developed for dragging, skidding or lifting in mines and quarries.

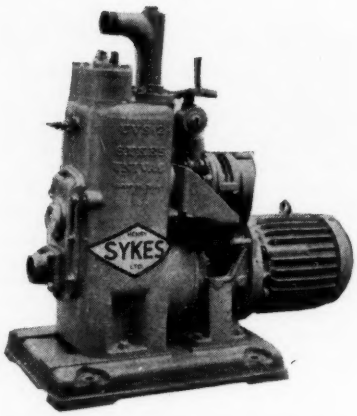
Michigan (Great Britain) Ltd., will be exhibiting the smallest and the largest tractor shovel from their full range of construction equipment, now British built. These are the Models 55A and 275A. In addition, the company will have display features showing Models 180 and 280 tractor dozers.

Caterpillar Tractor Co. Ltd. will show four machines. The 966A Traxcavator makes its first public appearance in Britain. The other three Caterpillar exhibits are all British-built. Biggest of the trio is the 235 h.p. D8H Tractor.

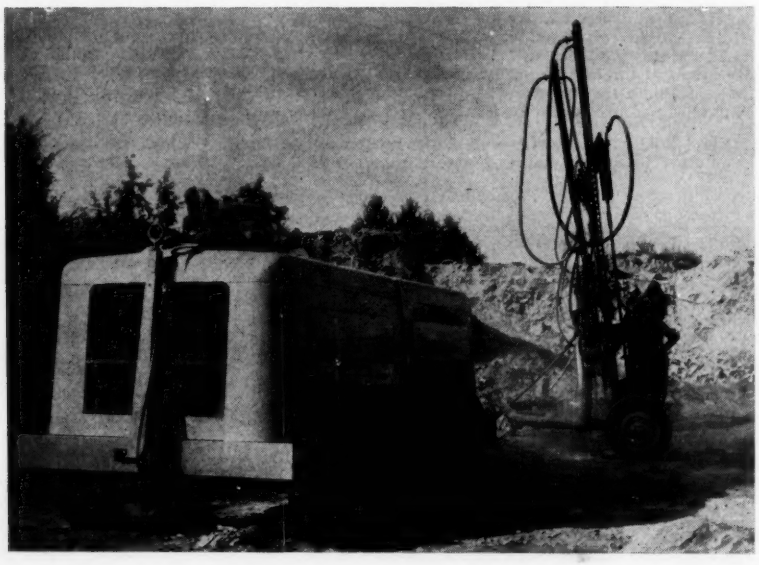
The three British Companies of the *Aveling-Barford Group* (Aveling-Barford Ltd., Goodwin Barsby & Co. Ltd., Barfords of Belton Ltd.) will present a combined display of their roadmaking, earthmoving, quarrying, building and contractor's plant. Of the twenty-three exhibits, eleven are completely new machines and almost all the others are of recent introduction or embody important new features to add to their versatility and performance.

The main exhibit by *Henry Sykes Ltd.*, will be a working display of an electrically operated 2 in. UVS2 Univac pump which is being demonstrated working on snore at a suction lift of 26 ft. The pump is column mounted for the exhibition and is powered by a 3 h.p. English Electric motor. Other versions of the UVS2 on display include diesel powered pumps on both standard and trailer mountings, the power unit being the Lister LD1 diesel engine. Also many winches are being shown.

Several dumpers and loaders by *E. Boydell & Co. Ltd.*, in the current Muir-Hill range will make their show début at Olympia. The loader section will include the RD2 with quarry bucket and Brockhouse transmission and the FD4 with 1 cu. yd. full-width bucket. These machines share a number of advanced design features including 50 deg. roll-back bucket action combined with a pry-out force of 7,400 lbs., for faster operation, bigger loads and reduced wear and tear. Another recent development on view will be the Muir-Hill 2WL Mark II loader equipped with Sherman hydraulic power digger. The dumper section will feature the 3 cu. yd. Muir-Hill 10B hydraulic dumper which combines a sound overall performance with an exceptional degree of driver comfort, and the 6 cu. yd. 18B hydraulic quarry dumper.



Below is the PR 600 air compressor by Atlas Copco, seen operating two wagon drills at an opencast site. Above, the electrically operated Sykes Univac pump



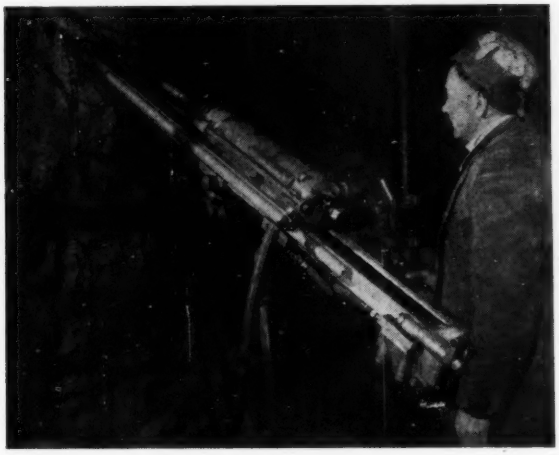
The Marshall Organization will be exhibiting a wide range of Road Rollers, Tractors and ancillary equipment on stands numbers 101 and 131.

A new crane of unique design will be shown by *NCK Rapier, Ltd.*, the sales organization of the Newton Chambers Group. This new machine, the NCK Rapier 545 sprawler, is being manufactured at the Thorncliffe (Sheffield) Works of Newton Chambers and Co. Ltd. by arrangement with Koehring Company of Milwaukee, U.S.A.

Ransomes and Rapier Ltd. will show the following machines on Stand No. 55 in the Grand Hall. The machines exhibited are of new design and on show for the first time. Rapier 4 cu. yd. hydraulic drive truck mixer mounted on an A.E.C. chassis; Rapier 9 cu. yd. hydraulic drive truck mixer and a range of Self Priming Pumps with capacities from 4,000 to 80,000 gallons per hour.

The Holman Group will exhibit a a representative range of civil engineering machinery. Products of the parent company, Holman Bros. Ltd., and its subsidiaries (Climax Rock Drill and Engineering Co. Ltd., Maxam Power Ltd., Goodyear Pumps Ltd., and Dustuctor Co. Ltd.,) as well as products of companies for whom Holman's are distributors, will be shown.

The Rotair 150 joins the successful 600 and 370 compressors in the Holman Rotair range. Portable enough to be manoeuvred into position by one man, and constructed to permit maximum permissible towing speeds, the Rotair 150 has a streamlined body, styled in fibre-glass. By making the airleg an integral part of their new Silver 33 rock drill, Holman Bros. Ltd., has been able



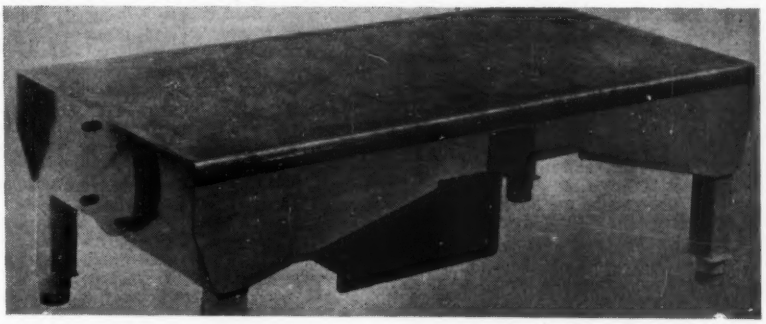
Alongside, at left, the new Holman heavy drifter, the SL 160 in a light alloy cradle for deep hole drilling underground. Below, in centre of page, the Type T4 Sherwen electro-magnetic vibrating table. At bottom of page is the Model 850 Eimco dump truck

to group all controls within easy reach of the operator's hand. Designed especially for deep hole drilling, the SL.160 has reversible rotation which considerably assists in the coupling and uncoupling of drill steels.

The Holtrac drill rig is an air powered, crawler-mounted, drill rig, incorporating the new S.L.160 heavy duty drifter on an hydraulic mounting and fitted with an eductor dust control unit. Mounted on a Fordson power Major tractor, with an incorporated Holman FM.13 air compressor, the 3.1/4 in. Vole drill forms a compact self propelled rig, ideal for deep hole drilling.

The 1960 *Blackwood Hodge/Euclid* stand will feature two items of equipment—a Euclid TS-14 twin-powered scraper and a Euclid C-6 crawler.

The first product of a manufacturing agreement made in January of this year between *R. H. Neal & Co. Ltd.* of Grantham and the Unit Crane & Shovel Corporation of Milwaukee, U.S.A. will be shown at the Exhibition. Known as the Neal-Unit Nu 1620—it is a ¾ cu. yd. capacity excavator which is now available to British industry for the first time. Designed for use as a dragline, drag shovel, face shovel or conventional crawler mounted crane with speedy conversion of front end attachments, this machine is the result of many successful years of operational experience in the U.S.A. It will be manufactured at Grantham by R. H. Neal & Co. Ltd., a member of The Steel Group.



A new lightweight submersible electric contractor's pump will be introduced to this country for the first time at the Exhibition. *Industrial Pumps Ltd.*, will be showing the Flygt BIBO 3, a four h.p., 3 in. pump weighing less than 90 lbs. The BIBO, which will go on sale and lease here simultaneously with its appearance at Olympia, has two interchangeable impellers. The high head impeller gives a maximum head of 90 ft.; the capacity impeller gives one of 67 ft.

The new BIBO is comparable in performance with the Flygt B80L, also a three-inch submersible pump, but is much lighter and works on a lower h.p. The appearance of the BIBO in Britain will be followed shortly by the introduction of another submersible contractor's pump new to this country— the four-inch, 7½-h.p. Flygt B100L.

At Olympia, Industrial Pumps Ltd. will also be showing their complete range of Flygt portable and submersible contractors' pumps.

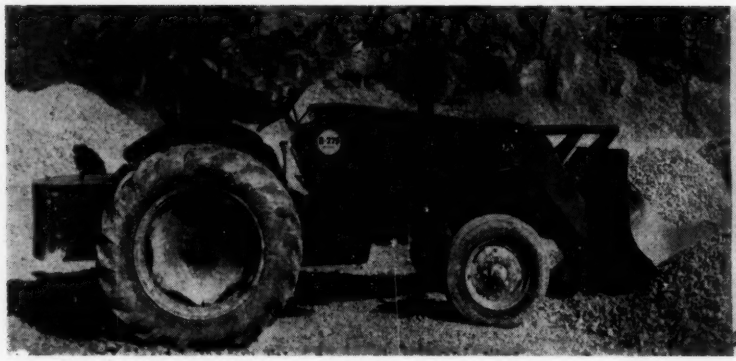
Eimco (Great Britain) Ltd. are showing on their stands Nos. 18 and 19 some units of their range of equipment for the civil engineering and mining industries.

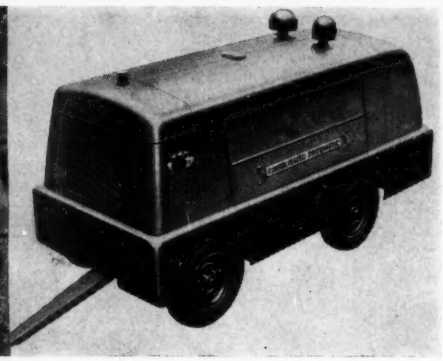
The display includes the Model 850 Eimco dump truck, a four-wheeled articulated 150 h.p. diesel-powered off-the-highway dumper of 9 cu. yd. capacity. Sales of the Eimco 850 dump truck in the United Kingdom are handled exclusively by Mackay Industrial Equipment of Feltham on whose stand a further machine is displayed. Also on show are two versions of the Eimco Model 622 RockerShovel, a small crawler mounted loading machine with a ½ cu. yd. capacity bucket. This loader is widely used in tunnelling and mining.

The Fraser and Chalmers Engineering Works of the *General Electric Co. Ltd.*, is exhibiting a wide range of materials handling equipment. Included on the stands will be a Dyad double-rotor hammer-mill, the first to be made by the company; part of a large jar-bar grizzley feeder, believed to be the first ever built in this country; a moving flow diagram illustrating the operation of the company's heavy media separation plants; a double deck Vibrex screen; and a selection of Sherwen vibrating equipment.

The Dyad double-rotor hammermill is a new addition to the company's range of crushers. It has been designed to receive large feed pieces and at the same time to give a high reduction ratio. In this design two hammermill rotors rotate towards each other, with a feed cradle between them on the top side, and and an anvil bar between and below them. A range of 11 sizes is available.

The 48 in. by 120 in. Style MS7 double deck Vibrex screen to be shown is a simple precision-built, fully-floating machine operated by a two-bearing





circle-throw out-of-balance vibrating unit with enclosed counter weights.

Thos W. Ward Ltd. will show the giant new Douglas dump truck: a 6 by 4 vehicle of 22 tons capacity, designed to meet the most exacting needs of earth-moving and quarrying contractors. Keeping company with the Douglas is the Mancunian 4 cu. yd. truck mixer, on Douglas 4 by 2 chassis. This again is the product of entirely new thinking: it is the only British truck mixer with direct gear drive from the vehicle engine to the mixer drum.

On the stand adjacent to their own, Wards have their subsidiary company *Thomas Smith & Sons (Rodley) Ltd.*, showing a Smith 12 excavator with goose neck trencher, Smith 21 crawler crane with grab, a Smith 12 narrow trencher all-cast-steel bucket, and track pads of a new design. Also on show will be a demonstration set of the forward Electro-alarm system, the safety device for boom cranes operating near power lines.

Ruston-Bucyrus Ltd., announce that on their stands, numbers 69 and 96, an entirely new machine will be introduced. This is the 11-RB transit crane of 9 tons capacity mounted on a specially-designed chassis constructed jointly by Atkinsons Ltd. and Ruston-Bucyrus Ltd., and powered by a Perkins diesel engine of 98 h.p. Road speeds up to 32.8 m.p.h.

International Harvester Co. of Great Britain Ltd. will exhibit three completely new additions to their range of British manufactured construction equipment. These are the Hough Model BH-70 Pay-loader, the Industrial front end loader, for McCormick International B-275 industrial wheel tractor, and the Wain-Roy model WR-460 backhoe for McCormick International B-275 industrial wheel tractor.

From the United States the Greenvile ripper model GRTD-20 for use with BTD-20 tractor will be shown.

Amongst the new items of equipment being shown for the first time by the *Consolidated Pneumatic Tool Co. Ltd.*, are the CP.155 Reichdrill, two new Power Vane compressors of 260 and 125 c.f.m. capacity and a new torque controlled impact wrench for use on bolt sizes of up to 1¼ in. dia.

On their stand *Westinghouse Brake and Signal Co. Ltd.* will show examples of their range of pneumatic control equipment applicable to the varied needs of industry and mechanical handling. In particular, a working layout of typical control equipment for a modern excavator will be shown, together with a demonstration panel of positioning equipment, remotely controlled valves, and examples from a wide range of double acting air cylinders. A colour film with commentary showing applications of pneumatic control as applied to ships, excavators, railcars, aircraft runway sweepers and various industrial purposes will also be shown.

Sheepbridge Equipment Ltd., a member company of the Sheepbridge Engineering Group, specializes in the manufacture of building, quarrying, mineral processing equipment, and fibreglass reinforced plastics. The company will be exhibiting three new crushers, the 20 in. Sheepbridge Kennedy roller bearing tertiary crusher is a gearless gyratory crusher, mainly of steel construction. The Sheepbridge Kennedy cuber junior crusher works on the impact breaker principle. The Sheepbridge Kennedy roller bearing gyratory crusher is designed and constructed for secondary or tertiary stage crushing.

Small & Parkes Ltd. will show Don brake linings and clutch facings, Sinter-Don sintered metal friction materials, Donflex clutch discs, Karmal engine packings, and Don stairtreads. Other equipments will be shown.

Robert Hudson Ltd., will show the new hydraulically operated 7 cu. yd. Leedsall dumper trailer, which consists of a Fordson Major power unit, or similar tractor, combined with a Hudson-built rear dumping trailer.

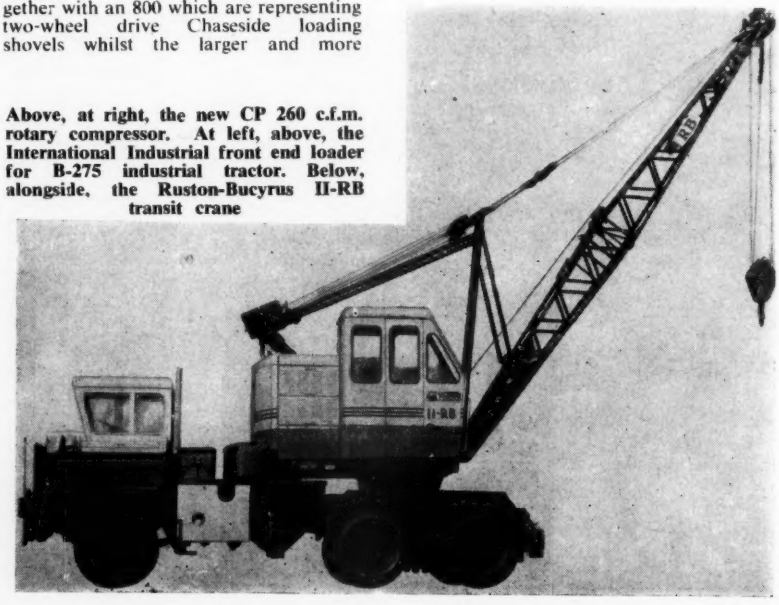
Chaseside Engineering Co. Ltd., will be exhibiting four machines from their Loadmaster range of mobile loading shovels, namely a Loadmaster 750, together with an 800 which are representing two-wheel drive Chaseside loading shovels whilst the larger and more powerful four-wheel drive range will be represented by the 150 h.p. Loadmaster 3000 and, at the other end of the scale, the recently introduced Loadmaster 1000.

Dowty Hydraulic Units Ltd., a member of the Dowty Group is exhibiting this year a wide and varied selection of products. A complete range of hydraulic gear pumps, gear motors, control valves, self-sealing couplings and hand pumps are on show.

Hydraulic gear pumps, reliable and efficient in operation, are displayed, giving deliveries from 0.5 to 50 g.p.m. at 1,500 r.p.m. at pressures up to 2,500 p.s.i. Hydraulic gear motors are available in six variations of two standard sizes from 2-24 h.p. and hydraulic control valves of two basic types—either open or closed centres supplied singly or in banks, and capable of handling flows from 7-50 g.p.m. at pressures from 1,000-2,500 p.s.i. are also displayed. The Dowty hydraulic hand pumps on view are robust and easily maintained units with a long and trouble free life. A variety of self-sealing couplings are included.

The Dowmatic Drive to be exhibited is an infinitely variable speed hydrostatic transmission, utilizing the positive displacement of oil between a pump and motor and is suitable for applications up to 60 h.p.

Above, at right, the new CP 260 c.f.m. rotary compressor. At left, above, the International Industrial front end loader for B-275 industrial tractor. Below, alongside, the Ruston-Bucyrus II-RB transit crane



Metals and Minerals

Russian Quicksilver for the U.K. Market

It is reported that a limited quantity of Russian quicksilver will be arriving in the U.K. about the end of this year. This is believed to be the first consignment of quicksilver from Russia to be landed in Britain since Czarist days. It will probably arrive at a time when the market is not too well supplied with warehouse stocks due largely to the recent tally clerks' strike in the Port of London, as a result of which supplies from some of the "marginal producers" in South and Central America could not be unloaded in London and were diverted to the Continent. This led to a shortage of metal for immediate delivery in the U.K. and enabled the Italian and Spanish producers to increase their quotations.

Since the end of the strike much of the quicksilver diverted to Europe has been finding its way back to London. So far, however, the London price has held its recent rise and is still quoted at £70 10s. ex-warehouse. The continued firmness of the market, though business is quiet, can be attributed to the known fact that neither of the two major producers will be keen sellers during the next three months. Due to a slight reduction in output resulting from the installation of new plant, the Spanish producers have no more metal available for delivery before the end of the year. The Italian producers are also reported to be in the unusual position of having no stocks at all available for immediate delivery in the U.K., and it is understood that they are willing to offer only very limited quantities during the next two or three months, as a result of heavy commitments abroad.

The Russian quicksilver is reckoned to be of a purity more comparable to that of the Mexican, Peruvian and Turkish outputs than to the higher grade Spanish and Italian metal. If it finds a reasonably receptive market, it could prove the forerunner to further shipments, possibly with a view to finding a permanent outlet in the U.K.

It is not known how much quicksilver Russia produces annually, but one estimate has placed it at 25,000 - 30,000 flasks.

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Dr. S. N. Sen, regional manager of India's State Trading Corporation, has announced the corporation's decision to import 12 tons of quicksilver from abroad. The estimated value being about 1,200,000 rupees. Dr. Sen also said that the Corporation had evolved a system whereby equitable distribution of quicksilver would be ensured among actual users recommended by the Director of Industries.

LONDON METAL AND ORE PRICES, NOV. 10, 1960

METAL PRICES

Aluminium, 99.5%, £186 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £200 per ton
Arsenic, £400 per ton
Bismuth (min. 1 ton lots) 16s. lb. nom.
Cadmium 10s. 6d. lb.
Cerium (99%) net. £15 0s. lb. delivered U.K.
Chromium, Cr. 99% 6s. 11d./7s. 4d. lb.
Cobalt, 12s. lb.
Germanium, 99.99%, Ge. kilo lots 2s. 5d. per gram
Gold, 255s. 6d.
Iridium, £20/£23 oz. nom.
Lanthanum (98%/99%) 15s. per gram.
Magnesium, 2s. 2½d./2s. 3d. lb.
Manganese Metal (96%/98%) £275/£285
Nickel, 99.5% (home trade) £600 per ton
Osmium, £18/£22 oz. nom.
Osmiridium, nom.
Palladium, Imported, £8 12s. 6d.
Platinum U.K. and Empire Refined £30 5s.
Imported £28½/£28⅝
Quicksilver, £70½ ex-warehouse
Rhodium, £43/£45 oz
Ruthenium, £14/£16 oz. nom.
Selenium, 46s. 6d. per lb.
Silver, 79½d. f. oz. spot and 79½d. f'd.
Tellurium, 28s. 6d. lb.

ORES AND OXIDES

Antimony Ore (60%) basis	21s. 6d./22s. 6d. per unit c.i.f.
Beryl (min. 10 per cent BeO)	240s./245s. per l. ton unit BeO
Bismuth	30% 5s. 0d. lb. c.i.f.
	20% 3s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semifriable 48%) (Ratio 3 : 1)	£15 5s. 0d. per ton c.i.f.
" Hard Lumpy 45% (Ratio 3 : 1)	£15 10s. 0d. per ton c.i.f.
" Refractory 40%	£11 0s. 0d. per ton c.i.f.
" Smalls 44% (Ratio 3 : 1)	£13 5s. 0d. per ton c.i.f.
Baluchistan 48% (Ratio : 3 : 1)	£11 15s. 0d. per ton f.o.b.
Columbite, Nigerian quality, basis 70% combined pentoxides (Ratio 10 : 1) Nb_2O_5 : Ta_2O_5	170s./175s. per l. ton unit c.i.f.
Fluorspar—	
Acid Grade, Flotated Material	£22 13s. 3d. per ton ex. works
Metallurgical (75/80% CaF_2)	156s. 0d. ex. works
Lithium Ore—	
Petalite min. 3½% Li_2O	50s. 0d./55s. 0d. per unit f.o.b. Beira
Lepidolite min. 3½% Li_2O	50s. 0d./55s. 0d. per unit f.o.b. Beira
Amblygonite basis 7% Li_2O	75s./85s. per ton f.o.b. Beira
Magnesite, ground calcined	£28 0s./£30 0s. d/d
Magnesite Raw (ground)	£21 0s./£23 0s. d/d
Manganese Ore Indian—	
Europe (46%-48%) basis 60s. 0d. freight	73d./75d. c.i.f. nom.
Manganese Ore (43%-45%)	69d./71d. c.i.f. nom.
Manganese Ore (38%-40%)	nom.
Molybdenite (85%) basis	8s. 11d. per lb. (f.o.b.)
Titanium Ore—	
Rutile 95/97% TiO_2 (prompt delivery)	£28 0s. 0d. per ton c.i.f. Aust'n
Ilmenite 50/52% TiO_2	£11 10s. per ton c.i.f. Malayan
Wolfram and Scheelite (65%)	148s. 0d./153s. 0d. per unit c.i.f
Vanadium—	
Fused oxide 95% V_2O_5	8s./8s. 11d. per lb. V_2O_5 c.i.f.
Zircon Sand (Australian) 65-66% ZrO_2	£16/£16 10s. ton c.i.f

U.S. BARTER LIST

The Agricultural Department in Washington has announced a revised list of strategic industrial materials it would accept for stockpiling in exchange for surplus agricultural products under the barter programme.

The Department has dropped cadmium from the barter list and has added the following commodities not on the last published list issued on September 30: Amosite asbestos, hard crocidolite asbestos, Jamaica and Surinam type bauxite, bismuth, chemical and metallurgical grade chromite, industrial diamonds, chemical grades A. and B. manganese, and mica including Moscovite block and film and phlogopite splittings. Already on the list were antimony, refractory grade bauxite, celestite, refractory grade chromite, acid grade fluorspar, manganese and tin.

ALCAN LIMITS PRODUCTION

Last week we reported Mr. N. V. Davis, president of Aluminium Ltd., as stating that Alcan, having built up inventories of primary metal to the desired level, was now in process of reducing production moderately to a level more nearly commensurate with the rate of sales. Alcan has now announced that two potlines at its Arvida works will be closed down within a week or so. Both these lines were started on a temporary basis during January and February to rebuild the company's stocks of metal. Alcan's overall ingot production will now be around 80 per cent.

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At a meeting in Amsterdam of representatives of British, French, Dutch, Austrian, Swiss and German aluminium smelting companies, a new international body was set up under the name of the Organization of European Aluminium Smelters. It seat will be in the Swiss city of Zurich. The aims of this body are the promotion of co-operation between European aluminium producers and the representation of common interests before international authorities and organizations.

Dr. A. Widerkehr, of Switzerland, has been elected president and Dr. J. Jakobi, of the U.K., vice-president. Other members of the board are Dr. J. Seibel, of Germany, and Dr. G. Uhlig, of Germany. Dr. Uhlig was appointed secretary.

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A project to erect an aluminium smelter in Norway is being studied by Svenska Metallverken, of Sweden. The announcement states that, in order to be economically feasible, the new smelter should have an annual production capacity of at least 30,000 tonnes. The cost of the proposed plant would be in the region of 200,000,000 crowns.

"BLUE PRINT FOR MAGNESIUM"

The 16th Annual Convention of the Magnesium Association was held in Cleveland, Ohio, on October 17, 18 and 19. The meeting was attended by representatives of the magnesium industry from Great Britain, France, Canada and Japan. Among the papers presented was one by Dr. W. F. Higgins, of Magnesium Elektron Ltd., England, whose

subject was "Magnesium Service ability Testing".

Taking as the theme "Blueprint for Magnesium", a wide range of magnesium applications was surveyed. Among the subjects discussed was the widening use of magnesium in the automotive industry. Mr. Otis Grant, president of Magnode Products Inc. and retiring president of the Association said that magnesium, being one-third lighter than aluminium, was a "natural" in the aircraft and missile industries. Its use was now spreading to the motor car industry. He cited as examples the use of magnesium in the instrument housing panels for Dodge and Plymouth, which are made of die cast magnesium, as are many parts for Chevrolet. Mr. Ralph G. Gillespie, of Brooks and Perkins, Inc., stated that increased use of aluminium in motor cars would be followed by added use of magnesium. He pointed out that the Volkswagen engine block, crankcase, and other parts were made of magnesium. The German manufacturers of Volkswagens report that they use 90 tons of magnesium a day, compared with 60 tons of aluminium and 45 tons of iron. A "development special" sports car using considerable quantities of magnesium in its construction was on display.

One of the sessions was devoted to discussions of magnesium in the Missile Age. The newer magnesium-thorium alloys, which extend the temperature range to 700 degrees (or higher for brief periods) were reviewed by Mr. Charles F. MacLean, of Lockheed Aircraft. A number of papers describing processes and methods were also presented.

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Commercial production of primary magnesium in the U.S. during the third quarter of 1960 was estimated at 9,715 s.tons, according to the Bureau of Mines, U.S. Department of the Interior. This was 110 tons above the second quarter. Total production for the first 9 months of the year at an estimated 29,455 s.tons, was 37 per cent above that of the corresponding period of 1959.

According to the *American Metal Market*, producer shipments of primary magnesium continue to run well ahead of production. Contrary to the trend in some metals, demand for primary magnesium this year will show a gain over 1959. The excess of shipment over production, amounting to about 8,400 tons, has continued to erode plant stocks, which were recently estimated at less than 28,000 tons of unalloyed metal in the hands of producers and consumers.

COLUMBIUM IN CANADA

The St. Lawrence Columbium and Metals Corporation has started building a $2,000,000 mill to produce ore from its columbium deposits at Ola, 20 miles west of Montreal. According to Mr. Jean J. Gourd, president of St. Lawrence, a mechanical and physical process has been found that will permit production of high concentrate ore, which does not require the use of chemicals. Production is scheduled to start in July, 1961, at an initial rate of 500 t.p.d. Provision will be made to increase capacity to 4,000 t.p.d., if demand warranted. Mining will be an open-pit operation. Associated in this venture with St. Lawrence are Anaconda Co. (Canada) Ltd., a subsidiary of Anaconda, and Kuhn Loeb and Co., New York investment dealers.

Plans for the erection of a 200 t.p.d. columbium plant, also in Quebec, were reported in our issue of October 21, p. 453.

COPPER · TIN · LEAD · ZINC

(From Our London Metal Exchange Correspondent)

Outside interest in all four metals during the week has been on a rather more restricted scale but, nevertheless, the better undertone, commented on in our last issue, has been fully maintained. It is, therefore, not surprising that there has been a marked change of sentiment in the market and very much less talk of a bearish nature is heard.

VANISHING COPPER CONTANGO

The main feature of the London copper market has been the virtual elimination of the contango which, within variable limits, has been maintained since the latter part of August, when official warehouse stocks stood at about 7,000 tons compared to the figure of 10,655 tons at the end of last week when an increase of 225 tons took place. This is undoubtedly one of the technical situations which inevitably develop periodically on the market and reflects covering of ntarby dates in the absence of a settlement at Chuquicamata whilst sellers are fully committed against the substantial purchases of 3 months copper by an influential quarter which will shortly start falling due.

In this respect, the coming weeks will be of particular interest to the market, as not only the question whether a contango will be re-established or a backwardation will develop but the whole outlook will depend on what happens as these purchases become prompt. Continental demand has not been impressive but buyers tend to watch every development with keen interest so as to be in a position to take immediate advantage of any small reaction in prices. The continued strike in Chile is a supporting factor and it can be argued that the production lost so far, in the region of 30,000 tons, is about 10 per cent of the expected total production for this year from the Chuquicamata mine. The strike has, therefore, already gone very much further towards offsetting the production excess than has been achieved by those other producers who have instituted a 10 per cent cutback. Already there is talk that the El Teniente workers will strike at the turn of the year when their present labour contract expires. In the Chuquicamata negotiations the Labour Minister's offer to take over the role of mediator has been accepted but on the spot negotiations do not seem likely to be re-opened before the end of the week.

In the U.S. business has been no better than routine although the improved tone of overseas markets has brought about a rather better feeling. The main producers find November Orders below the October level whilst dealers, after making moderate sales, have raised their price to 29½/29¾ c. and the scrap price has been boosted ¼ c. to 23¼ c.

TIN SLIPS BACK

After the modest rally in tin prices at the end of last week, the market has once again slipped back in the face of reduced enquiries both from the United States and the Continent and some selling in London against purchases in the East where on Thursday the price was equivalent to £804¾ per ton c.i.f. Europe.

LEAD-ZINC STEADY

In both lead and zinc moderate consumer demand and the absence of any selling pressure on the nearby position has sufficed to maintain steady markets. The maintenance of the backwardation in zinc and a reduced contango in lead have also been steadying factors tending to restrict the selling of forward metal. Lead production in O.E.E.C. countries in September at 60,212 tonnes showed an increase compared with August's figure of 44,223 tonnes and stocks at the end of the month totalled 63,027 tonnes against 58,709 tonnes at the end of the previous month. Zinc production in September was 72,166 tonnes, somewhat less than August's figure of 73,278 tonnes. Stocks also declined to 53,386 tonnes compared with 58,125 tonnes.

In the U.S., lead demand during the week was on a reduced scale whilst zinc buying, particularly in the case of special high-grade, has been maintained at recent levels. Prime Western demand, on the other hand, is not expected to show any real improvement until there are better reports of steel industry operations. Both quotations at 12 c. for lead and 13 c. for zinc are regarded as steady, particularly the latter in view of the prolonged strike at certain producing centres.

Closing prices are as follows:

	November 3		November 10	
	Buyers	*Sellers*	*Buyers*	*Sellers*
COPPER				
Cash ..	£221¼	£221¾	£227¼	£227⅞
Three months ..	£223	£223¼	£227½	£227¾
Settlement ..	£221¾		£227⅞	
Week's turnover	12,325 tons		14,450 tons	
LEAD				
Current ½ month	£68⅞	£69	£69½	£69⅝
Three months .	£69¼	£69⅜	£69⅝	£70
Week's turnover	5,825 tons		6,225 tons	
TIN				
Cash ..	£802	£802½	£799¼	£800¼
Three months ..	£799	£800	£797½	£798
Settlement ..	£802½		£800¼	
Week's turnover	600 tons		920 tons	
ZINC				
Current ½ month	£89	£89¼	£88½	£89
Three months ..	£87	£87½	£87½	£87¾
Week's turnover	7,425 tons		5,850 tons	

Mining Finance

Tins Continue to Shine

Gold shares and tin shares look like dominating mining markets in coming weeks, the former because of the higher gold price and the prospect of exciting events in the western world's bullion and currency markets, the latter because a stream of sharply higher profits and dividends is beginning to hammer home how much the loosening of the output restriction screw, allied to a high price for the metal, has meant in the way of extra earnings for the leading producers. And for some of them the removal of the curb on tin exports under the International Agreement as from October 1 last will mean still higher profits.

The tin results discussed here previously have been mostly from companies which ended their financial years last March and which were thus subject to quite a deal of restriction during the period. Those that end their accounts on June 30 will have suffered rather less in this respect and two notable examples have appeared this week in Malayan Tin Dredging and Southern Malayan Tin Dredging. The former, in particular, has done brilliantly, but there has been a special factor here. In late July of last year the company brought in a new deep-digging dredge that had been granted a special export assessment of its own. Malayan was thus able to expand its sales in the year to June by a far greater amount than other companies, from, according to the quarterly returns, 1,116 tons to 3,299.

Hence the net profit after tax and special debits has soared from £180,112 to £609,406 out of which £567,312 is being disbursed in dividends, a final of 7½d. per 5s. share bringing the total for the year up to 2s. 6d. which compares with the equivalent of 9d. for 1958-59 on the present capital as doubled by the one for one share bonus. Malayan improved to 24s. 6d. on the news and after allowing for the dividend in the price the yield is 10.4 per cent, an attractive return indeed for a company that with a big new dredge should be able to take full advantage of the present unrestricted output conditions. It has four dredges working in all.

Southern Malayan has not had a new dredge to help it, but has nevertheless done very well, lifting its taxed profit for the year to June from £177,649 to £431,353 and showing the Board's confidence in the outlook for 1960-61 by slightly over-distributing with a pay-out of £441,511 in the shape of a dividend brought up to 2s. 6d., the same as for Malayan, by a final of 7½d. Here the yield at 21s. 9d. cum. dividend is 11.7 per cent, more generous than for Malayan, but Southern Malayan has not got that company's output potentialities in the new derestricted circumstances. Sales for the year to June totalled 2,833 tons against 1,744 tons in 1958-59. There are five dredges working.

LONDON MARKET HIGHLIGHTS

The announcement on Wednesday of Mr. Kennedy's victory in the U.S. Presidential election made a marked impact on what was already a very firm South African Gold share market. Prices were immediately marked up in Johannesburg and London by amounts ranging to 5s. a share and a brisk demand came from the Cape and the Continent. Enthusiasm was dampened later when the day's bullion fixing price was left unchanged and some local profit-taking was seen. But although final share prices were below the best they still showed a widespread improvement on the previous night's levels.

Western Holdings remained outstanding in the O.F.S. group, rising 2s. 6d. to 163s. 9d. —an advance of 7s. 6d. since Friday—and Cape buyers were again seeking Loraine which rose 10½d. more to 29s. 4½d. Free State Geduld at 138s. 9d., however, merely regained the previous day's loss of 1s. 3d. ; one reason given for the recent unresponsive tendency of these shares is that a large deceased account has been overhanging the market.

Special factors aided a general rise in the Far West Rand group. Hartebeest, for instance, moved up another 1s. to 55s. 6d. on further consideration of the mine's much improved development outlook. And the high value reef strike was a helpful factor in West Wits (71s. 3d.) and Libanon (17s. 7½d.). Shares of the older mines which remained in particularly short supply were raised in price, East Rand Proprietary by 1s. 6d. to 42s. 3d.—not far short of this year's " high " of 44s.—and Durban Deep by 1s. 6d. to 39s. 4½d.

A good deal of interest switched to the Finance group where share prices had previously been lagging in the recovery. Particularly brisk activity developed in Consolidated Gold Fields as the shares climbed 1s. 9d. to 72s. 9d. Anglo American (172s. 6d.), " Johnnies " (54s. 6d.) and Consolidated Mines Selection (33s.) all came to life. A persistent Johannesburg demand raised Rand Mines to 96s. 3d.

While all this was going on in Kaffirs, the recovery in the Tin section was unobtrusively taken a stage further. The particularly excellent results from Malayan and Southern Malayan were reflected in respective share prices of 25s. 6d. and 21s. 9d. And Ipoh were marked up 3s. to 21s. following their trebled dividend.

Some helpful Press comment over the weekend stimulated a recovery in Copper shares but buying interest waned towards the middle of the week. Previously, Selection Trust had spurted 5s. to 91s. 10½d. on a rather belated recognition of the benefit to the company of the recently increased American Metal Climax dividend. A strong market also developed in M.T.D. (Mangula) ; Cape buyers looked forward to the young Southern Rhodesian producer's results and the buying, which lifted the shares to 8s. 3d., was subsequently proved to be fully justified. This in turn prompted an upward move to 19s. 4½d. in Messina which have a big shareholding in Mangula and have yet to announce their results.

Otherwise, Mountain Copper dropped to a low for the year of 14s. on news of the proposed rights issue while Fresnillo were ahead to 30s. following the announcement of steps to widen the company's scope of operations.

KAMUNTING'S LIFE ESTIMATES

The results of Kamunting Tin Dredging for the year to last March have already been commented on here (October 28). In the full report the chairman, Mr. Jack Addinsell, gives some very useful information about the dredge lives. In brief it is as follows. No. 6 is nearing the end of its present ground and dismantling for transfer to the area acquired from Taiping Rubber should start in the second half of 1961. Its life there is put at 16 years. No. 5 dredge should continue on its present site until about April, 1962. Then in due course it will be moved to the Eastern Tailings area which should give it a further 10 years of life. The No. 4 dredge, at present on care and maintenance, is unlikely, owing to its age and small capacity, to find new ground. All these dredges are in Malaya. In Thailand Kamunting's property should have a life of about 11 years with two dredges working.

Mr. Addinsell says that it takes about 18 months to dismantle and re-erect a dredge and warns that the programme of removals must materially curtail the company's Malayan production with a temporary falling off in profits. The cost of the work is put at some £700,000 and, with a further addition to the revenue reserves in 1960-61, there should be sufficient resources to finance this. The balance sheet certainly shows a very healthy liquid position. Meanwhile, Kamunting's output and sales should be " substantially " higher in the current financial year and it looks as though an increase in the dividend can be counted on despite the need for a further allocation to reserves.

AMALGAMATED TIN'S COLUMBITE SALES

Amalgamated Tin Mines operates in Nigeria and, in addition to its tin output, ranks as one of the world's largest producers of columbite. The strong revival in the market for the latter metal played a large part in the company's sharply higher profits for the year to last March already commented on here (October 28). The revelation in the full report is that Amalgamated sold far more columbite in that year than it produced. Sales were as much as 930 tons of which 513 tons came from stocks. There was also some running down of tinstocks, 3,503 tons of concentrates being sold against 3,101 tons produced. It is stated that columbite sales have further expanded in the current financial period. So not only present production but also a large part of remaining stocks have been contracted for sale at improving prices. As pointed out here a fortnight ago, tin output has also been rising with the easing of export restrictions under the world scheme. The chairman, Mr. J. Ivan Spens, thus looks to be almost a little pessimistic in concluding that the company " should enjoy another favourable year with satisfactory financial results".

In defence of the large liquid resources retained in the balance sheet Mr. Spens says that some capital equipment will need replacing soon which will entail substantial expenditure. The primary columbite deposit is also to be worked again " later this year". Amalgamated Tin are 10s. ex. dividend to yield 10 per cent on the 1959-60 payment of 20 per cent.

PAHANG DOING WELL

Continuing the happy story from the tin producers, Pahang Consolidated is raising its dividend for the year to July 31 last from

12½ per cent to 18 per cent on the 5s. units with a final of 15 per cent. The net profit is up from £101,670 to £167,043 which is after both tax of £111,877 and depreciation of £58,720. The distribution is well covered by earnings, 1.5 times in fact, and the company puts £117,504 to general reserve, although part of this is drawn from the carry-forward which is thereby reduced from £106,024 to £41,026.

Pahang works a lode mine and thus was particularly hard hit by output restriction because costs are not so easy to cut down on a reduced working basis as are those of a dredging concern. It thus has considerable scope for recovery now that restriction has been taken off and should be doing well in its current financial year. As the end-year date is July 31 it is not possible to work out the exact ore sales for 1959-60, but in the twelve months to June 30, according to the quarterly returns, they totalled 2,144 tons and the September quarter figure was at the higher rate of 646 tons, a rate that may well be improved upon in the current de-restricted period.

Pahang are around 10s. ex dividend to yield 9 per cent and on the 1960-61 outlook should have some scope for appreciation. They were up to 13s. 6d. earlier this year.

AMAX BOOSTS SELECTION TRUST

Third-quarter earnings of American Metal Climax, known to Americans as Amax, continued at a very satisfactory rate and net income for the first nine months of 1960 was considerably higher than during the same period of last year. This was the announcement datelined New York from Mr. Walter Hochschild, chairman, and Mr. Frank Coolbaugh, president. They added that a quarterly dividend of 35 cents had been declared, an increase of 5 cents over a rate that had been unchanged since 1956.

The impact of this on the London mining market was to put up the price of the 10s. stock units of Selection Trust which has a 12.4 per cent stake in the Amax equity, the income from which plays quite a large part in the trust's fortunes. Any news from Amax is also of interest in another way to the Mason's Avenue headquarters of Selection Trust in London because Amax controls Rhodesian Selection Trust (a 50.6 per cent interest) and also owns quite a large slice of one of the group's copper producers, Roan Antelope (32.65 per cent).

The increased quarterly payment from Amax, which is almost certain to be followed by maintenance of the new rate in the last quarter of 1960, will come into the Selection Trust's accounts that will be made up on March 31 next. It thus heightens the prospect that the trust will not only maintain its 1960-61 dividend at 7s. per 10s. stock unit, as already forecast by the chairman, Mr. A. Chester Beatty, but may even increase it.

At 92s. Selection Trust offer a yield of 7.6 per cent on a 7s. basis. A buyer is getting a first-class spread over the mining world on both sides of the Atlantic, but must remember that the Rhodesian segment is subject to quite a degree of political risk.

TREPCA PAY-OUT A STEP NEARER

Another important announcement has come from Mason's Avenue this week. It was from Mr. Edward Bostock, liquidator of Trepca Mines, also a Selection Trust group company. He has at last come to an agreement with Mr. Pasic whose lawsuit has been holding up the distribution of Trepca's assets for so long. The settlement is for £70,000 compared with over £2,500,000 at one time claimed. There are still some legal formalities to go through and Mr. Bostock is understandably cautious about these.

But it looks as though he should be in a position in the not far distant future to distribute some £1,500,000 in cash, or about 4s. 2d. per Trepca share, plus one share in Treselca for every four Trepca which may be worth another 2s. 1½d. per Trepca share providing that Selection Trust can rearrange its previous cash offer of 8s. 6d. each for these so that "Trepca stockholders will receive the same amount in cash as would have been obtainable by them under the original offer by Selection Trust". This is what the trust announced last August.

Trepca 5s. stock units have moved up to 5s. 3d. on the news compared with about 6s. 3d. that will be eventually receivable if all goes well.

AN IMPORTANT WEST WIT DRILL RESULT

It is quite a long time since the persistent drilling programme being conducted by West Witwatersrand Areas has pitched up a really significant result. One of the things in mining exploration that is too often not realised by shareholders is the huge amount of unproductive work that has to be done in order occasionally to produce something that can be the beginning of a new mine or the extension of an old one.

The latest West Wit result could do either. The hole lies to the east of the Libanon mine. The horizon cut at the quite considerable depth of 8,490 ft. is the Ventersdorp Contact reef, the values from a complete core recovery 41.2 dwts. over a corrected width of 32 inches, or 1,318 inch-dwts.

The hole, No. 21 on farm Rietfontein 349, is part of a West Wit drilling programme aimed, according to that company's newly issued annual report, at finding possible extensions, both lateral and in depth, of known sectors of reef horizons which have been proved payable by exploitation in existing mines. Holes Nos. 21 and 22, the latter is well to the south of Libanon, are sited with this objective in mind and also to determine the position and effect of the Witpoortje fault.

The evidence from borehole 21 is that the Ventersdorp Contact reef continues with increasing gold values on the dip from Libanon. The drill was sited almost exactly 2 miles east of this mine's new Harvie-Watt shaft. The eventual significance of the latest find to either Libanon or West Wit will have to await many more months of arduous drilling in this region.

F.S. Development Borehole.—In the "M.J." of February 6 last, some account was given of the prospecting by Free State Development and Investment across the Vaal River immediately south of the Buffelsfontein property. Of the two boreholes which have been going down, that on Farm Grootvadersbosch 470 (opposite the eastern side of the Buffels property and about 4,000 ft. south of the river) intersected the Vaal Reef at 6,991 ft. and six deflections were made. The average recovery was 13.43 dwt. over 28.5 in. equivalent to 367 in. dwt. Only two core recoveries were complete.

Natal Coal.—Natal Coal Exploration's net profit after tax for the year to June 30 last was virtually unchanged from the preceding year at £185,676, the dividend distribution also remaining unchanged at 8d. per share. Coal sales were fractionally down on the year at 674,405 tons, South African Railways being, as usual, the mines' largest customer.

F.S.G. Borehole.—Borehole AR.5 put down by Free State Geduld in its lease area's south-eastern corner on the common boundary with Western Holdings has intersected the Basal Reef at a depth of 7,479 ft. showing values of 63.3 dwt. over a corrected wwidth of 5.54 in. equivalent to 351 in. dwt. In a deflection, the Basal Reef was duplicated by a reverse fault, being intersected at 7,479 ft. and again at 7,540 ft. yielding respectively 172 in. dwt. and 126 in. dwt. Core recoveries were complete. A further deflection is to be made in this area which has yet to be fully explored.

Mangula Pays More.—M.T.D. Mangula has declared a final dividend of 6d. per stock unit in respect of the year to September 30 last, making a total of 9d. for the year compared with a maiden distribution of 3d. in the previous year. Net profit is reported at £923,485 against £394,224. No tax liability arises on the year's workings.

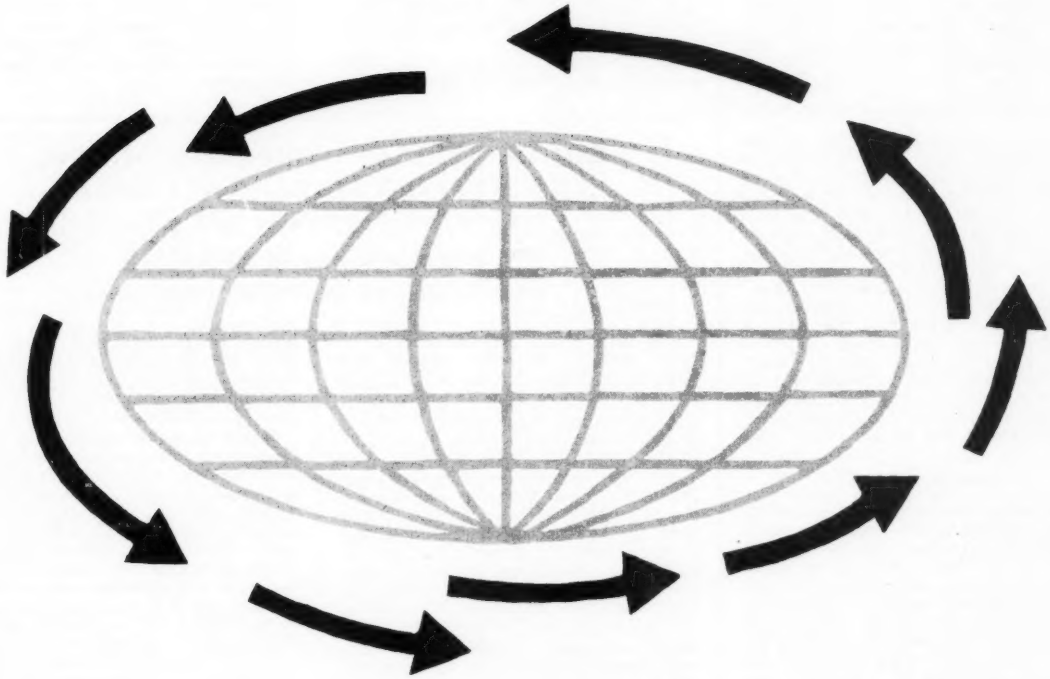
Lake View and Star Pay Same.—Lake View and Star have declared a final dividend of 1s. 6d. per share making, with the interim, an unchanged total distribution of 2s. 6d. for the year to June 30 last. Profits from mining operations are provisionally reported at £400,032 (£403,788). After providing for tax depreciation and dividend the carry forward from all operations will be £95,708 (£89,707).

Chartered's Royalties.— Chartered's royalties for the financial year to September 30 last amounted to £11,665,000 against £9,262,000 in the previous year and are nearly double the figure recorded in 1958—period during which copper prices were at their lowest. This is bound to encourage hopes of a higher total distribution for the past year despite the directors' warning when they raised the interim last month from 1s. 6d. to 2s., that it was their intention to provide a better balance between interim and final payments. The final is due to be declared next February. Last year's total distribution was 6s. and there is obviously room for this to be increased. Whether in fact it will be is likely to depend on the political situation in the Federation at the time. Chartered's 15s. stocks units have been depressed for some time and at 70s. offer a yield of 8.5 per cent on a 6s. distribution.

New Guinea Goldfields.—The net profit after tax for this company to June 1960 is reported at £A49,179 against £A62,639. As in recent years the profits have come almost entirely from trading and indeed mining operations this year show a loss at £A5,927 compared with last year's working profit of £A2,394. The loss is attributed to a loss of some £A17,000 in the alluvial operation worked jointly with Koranga Gold Sluicing Ltd. New Guinea's own mining operations made a profit of about £A11,000.

The dividend is being maintained at 3d. per share and is to be paid out of the Gold Mining Profits Reserve which after this payment will stand at something under £A150,000

BUYERS OF CONCENTRATES AND ORES



SELLERS OF VIRGIN METALS

AMMC
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associated metals & minerals corporation

75 West Street, New York 6, N. Y. WH 3-5040

AMALGAMATED TIN MINES OF NIGERIA

CHAIRMAN'S STATEMENT

The 21st Annual General Meeting of Amalgamated Tin Mines of Nigeria Limited will be held on November 29 at 55-61 Moorgate, London, E.C.2.

The following is the Statement by **Mr. J. Ivan Spens, O.B.E.**, the Chairman, which has been circulated with the Report and Accounts for the year ended March 31, 1960:

Nigeria's Independence

As you all know, Nigeria has recently achieved independence within the Commonwealth and I would like to record our congratulations to the Federal Government and to the peoples of Nigeria on this achievement, and to wish them every success in the future. Your Company was duly represented at the celebrations which took place to mark this historic occasion.

Sales of Tin and Columbite

The improved results this year are due to the increase in the permissible exports of tin concentrates and to the better price received for the metal (£789 per ton against £754 per ton last year) and to a considerable increase in columbite sales. Our production of tin concentrate for the year was 3,101 tons, while permitted exports under the International Tin Agreement totalled 3,503 tons tin concentrate against 2,452 tons last year. The balance of 402 tons was taken from our mine stocks. There was also a revival of interest in columbite and our sales for the year at 930 tons, to satisfy which some 513 tons were taken from stock, were made on satisfactory terms to your Company.

Expansion in Markets

The steady improvement in demand for tin and columbite during the year made it possible to re-engage many of those whose services had unfortunately to be terminated in the early days of tin export control. The recovery, I am pleased to say, continues. Since the close of the year under review restrictions on tin exports have eased further and, for the quarter to December 31, 1960, they have been lifted altogether. Columbite sales have also improved and a large part of our stocks and current production have been contracted for sale at improving prices, thus we should enjoy another favourable year with satisfactory financial results. We are taking steps to produce again our primary columbite and it is hoped that this will become effective later this year.

Accounts

On the Balance Sheet the reduction in the item Stock of Tin and Columbite concentrate reflects the call we made upon these stocks which I referred to above. "Debtors and Prepayments" includes £635,936 for balance of deliveries due for tin and columbite, the whole of which has been received since the end of the financial year. Our Contingencies Reserve remains unchanged but it is appropriate to mention that we shall soon have to replace some of our Capital Equipment if we are to maintain outputs at economic levels. Substantial expenditure will accordingly be necessary for this purpose.

The profit for the year increased to £384,885 against £182,774 last year. After deducting taxation, £142,000, and the interim dividend paid on March 18, 1960, £95,550, there remains a sum of £147,335. We recommend a final dividend of 12%, which will take £143,325, leaving £4,010, which will increase our carry forward figure to £289,548.

Directorate

Sir Douglas Waring visited your properties in March of this year. He had consultations with the Directors of the Management Company and was able personally to meet many of the technical and other employees.

Labour and Welfare

The Technical Managers have dealt with these matters in their appended Report, which I hope you will find of interest.

The Workers' Councils again played an important part in Employer/Employee relations.

Your Company continued to maintain nine clubs and ten Meeting Houses for the recreation of African staff and employees.

Industrial relations have been good throughout the year and a cordial relationship exists between Management and Labour, largely due to regular meetings of the Joint Consultative Committees and the Workers' Councils.

We intend to continue our policy of appointing suitable Africans to senior positions.

General

Our thanks are again due to the European and African staff of your Management Company and to the African employees. Their loyalty plays an invaluable part in the success of our Company.

SOUTH AFRICAN TORBANITE MINING AND REFINING COMPANY LIMITED

(Incorporated in the Union of South Africa)

INCREASED VOLUME OF SALES

MR. S. G. MENELL ON FUTURE OPERATIONS

The 26th annual general meeting of South African Torbanite Mining and Refining Company Limited will be held on December 2 in Johannesburg.

The following is the circulated review of the financial year to June 30, 1960, of the chairman, **Mr. S. G. Menell:**

This year the refinery operations were extended to include the processing of a second type of imported crude oil. The quantity of oils processed, including that from torbanite, reached a total of 20,267,819 gallons and the refined products sold yielded a net revenue of £2,129,002, after deducting excise duties.

The attainment of these increased figures was made possible by the improvements carried out on the plant to which I referred in my review last year. The increased volume of sales—23.4 per cent up compared with last year—was principally due to a good bitumen market and Sasol Marketing Company's capacity to take up and market our petrol.

High tribute must be paid to the management and staff of the Company for their skill and ingenuity in achieving these results, particularly while at the same time engaged upon the task of investigating schemes for the continued operation of the refinery after torbanite reserves were exhausted.

The Future

Apart from the technical angle of the Company's future operation after the cessation of torbanite oil production, there is the all important economic aspect, bound up as it is with the loss of certain advantages, actual and potential, which we have enjoyed as indigenous producers. Account must be taken of the inherent risks in running a small inland refinery like ours in a competitive, highly specialized, ever expanding and progressive industry such as the petroleum industry, calling as it would for the investment of large sums of money in the modernization and expansion of process plant and distribution facilities.

It will be readily appreciated that the exploring of all avenues has been time consuming but it is gratifying to be able to inform you that, following very protracted negotiations, understanding has now been reached whereby the Company will enter into agreements with the major importing oil companies in the Union to process crude oil on their behalf, to the full capacity of our Boksburg refinery for an initial period of fifteen years. Though certain pertinent principles have been agreed, further particulars cannot be given at this stage as the contracts have not yet been finalized. Certain capital expenditure will be required together with overdue replacements of plant and equipment which have been held in abeyance pending clarification of the future position, but such expenditure will not exceed the Company's own resources and the terms of the contracts will be such as to ensure a satisfactory return on our investment.

From the outline I have given of the proposed arrangement—and having regard to all the circumstances you will appreciate that I have advised you as soon as I could and as fully as is possible at this stage—I am sure you will agree with the board that it will be a satisfactory one from your Company's point of view and in the best interests of the shareholders.

The Year's Results

For the year under review the trading surplus of £369,306 was £151,507 higher, compared with last year. After charging amortization and depreciation of fixed assets, directors' emoluments and inter-

est paid on debentures, and adding income from other sources, the net income earned during the year, after providing an amount of £73,147 for taxation, amounted to £189,176. Of this £104,016 has been set aside for dividend and £85,160 retained until the company's future operations are more clearly defined.

The production of torbanite crude oil at Ermelo, assisted by the continued extraction of torbanite remnants from the higher grade areas, mined previously, amounted to a total of 6,165,333 gallons from 162,368 tons of torbanite at a yield of 38 gallons per ton. It is with regret that I have to inform you that all the payable torbanite deposits at our Ermelo mine have now been extracted and production there ceased at the end of September, 1960. During the 26 years of its life, this pioneering operation has had to face and overcome many difficulties. As a result of accumulated knowledge and experience, continual improvements in efficiency have enabled this venture to maintain profitable operation, justifying the initial faith in this project. It is of interest to record that since the inception of the Ermelo operations more than four million tons of torbanite shale have been mined and processed which, but for the entrepreneur, would have remained unexploited.

Unfortunately our search has not yet been successful in disclosing further payable deposits of oil yielding shales and we have therefore no alternative but to close down this phase of our operations and disband the organization.

To the management and staff of our Ermelo division I would like to tender our thanks and appreciation of their efforts. I am pleased to be able to inform you that we have managed to obtain offers of employment elsewhere for all the personnel, none of whom need be unemployed as a result of the closing down of the mine.

The disposal of the mine assets to the best advantage is now well in hand and considerable progress has been made in this regard.

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Rand and Orange Free State Returns for October

GOLD OUTPUT AND PROFIT

Company	October 1960 Tons (000)	Yield (oz.)	Profit† (£000)	Year ends	Current Financial Year Total to date Tons (000)	Yield (oz.)	Profit† (£000)	Last Financial Year Total to date Tons (000)	Yield (oz.)	Profit† (£000)
Gold Fields										
Doornfontein	105	43,307	241·5	J	420	172,526	912·4	379	153,822	761·0
Libanon	117	27,989	75·6	J	468	111,820	277·9	439	102,971	242·9
Luipaards Vlei	68	11,856	8·6	J	272	47,708	19·7	290	51,222	23·2
Rietfontein	15	3,668	4·5	D	156	40,658	57·3	160	42,370	75·5
Robinson	46	10,251	6·8	D	449	99,356	11·9	581	121,712	L67·9
Simmer & Jack	74	13,318	6·2	B	757	134,528	L37·6	857	163,751	L31·5
Sub Nigel	66	15,195	18·9	J	266	60,775	63·7	266	63,154	86·6
Venterspost	122	33,965	87·6	J	496	138,441	319·4	511	128,229	246·9
Vlakfontein	51	18,572	92·6	D	516	185,584	881·4	508	182,046	861·4
Vogels	85	17,914	22·4	D	855	183,586	205·3	914	204,708	356·7
West Drie	130	121,518	1120·9	J	520	493,401	4353·0	405	370,608	3098·7
Anglo American										
Brakpan	146	17,746	17·1	D	1,432	173,443	129·5	1,390	168,158	114·6
Daggas	225	45,560	226·5	D	2,308	466,539	2271·1	2,401	482,916	2361·6
East Daggas	108	18,362	44·9	D	1,058	179,604	412·8	1,005	168,183	338·6
F. S. Geduld	95	82,158	674·6	S	95	82,158	674·6	93	77,429	604·6
President Brand	118	94,806	841·3	S	118	94,806	841·3	117	96,233	852·5
President Steyn	105	39,093	172·4	S	105	39,093	172·4	104	41,288	195·7
S.A. Lands	99	20,603	52·1	D	976	202,696	459·5	967	202,096	568·1
Springs	94	12,906	14·7	D	1,007	139,887	141·7	941	142,611	130·5
Vaal Reefs	104	47,840	265·7	D	992	448,452	2360·5	898	405,437	2141·8
Welkom	99	31,532	81·1	S	99	31,532	81·1	98	30,949	79·4
Western Holdings	157	105,972	909·0	S	157	105,972	909·0	136	86,340	686·6
West. Reefs Ex.	132	37,478	119·5	D	1,393	393,888	1305·6	1,310	344,322	1041·0
Central Mining										
Blyvoor	135	87,280	681·5	J	539	349,969	2662·6	522	340,791	2572·3
City Deep	121	24,206	5·0	D	1,148	234,506	53·5	1,151	239,640	95·8
Cons. M.R.	52	10,840	3·4	J	226	46,002	16·1	395	73,739	31·4
Crown	198	33,810	6·4	D	2,004	339,546	63·8	2,215	351,700	136·8
D. Roodepoort	195	35,296	55·4	D	1,931	353,150	502·6	1,916	353,845	535·7
East Rand Prop.	227	51,370	87·0	D	2,230	540,862	828·0	2,211	575,196	1190·8
Harmony	168	68,308	333·4	J	670	270,415	1269·7	566	223,956	1014·5
Modder East	128	12,544	0·4	J	517	50,460	L0·2	568	54,517	11·4
Rose Deep	24	4,002	0·5	D	244	42,917	9·3	384	52,868	L1·7
J.C.I.*										
Freddies Cons.	63	13,225	L35·0	D	608	133,444	L387·2	594	142,586	L369·8
Govt. G.M.A.	52	10,291	0·7	D	527	107,323	5·2	534	107,210	L11·9
Randfontein	18	3,477	0·9	D	230	45,152	26·8	356	60,979	84·1
Union Corporation										
East Geduld	129	37,410	242·8	D	1,319	385,659	2468·5	1,388	415,458	2799·1
Geduld Prop.	80	13,509	35·2	D	752	130,646	249·0	879	165,852	353·9
Grootvlei	225	46,579	258·7	D	2,180	453,115	2337·2	2,130	449,480	2326·6
Marievale	98	24,059	132·3	D	987	241,553	1268·4	947	232,501	1144·6
St. Helena	178	61,855	405·7	D	1,654	563,329	3520·8	1,510	460,938	2547·4
Van Dyk	74	11,506	8·0	D	737	120,651	87·2	752	141,461	276·9
Winkelhaak	95	32,062	183·9	D	878	281,115	1392·0	760	192,701	448·2
General Mining										
Buffelsfontein	148	61,162	343·5	J	589	242,604	1321·6	577	219,648	1147·9
Ellaton	27	6,416	23·6	D	283	66,987	246·9	310	72,199	289·1
S. Roodepoort	31	7,393	25·0	J	122	29,174	94·5	121	28,728	92·3
Stilfontein	168	76,300	431·6	D	1,622	732,866	3908·6	1,434	686,870	4099·5
W. Rand Cons.	136	20,009	15·4	D	1,328	191,315	91·4	1,381	199,945	181·7
Anglo Transvaal										
Hartebeestfontein	118	54,870	325·3	J	478	222,568	1283·8	372	196,455	1258·4
Loraine	82	17,914	L12·8	S	82	17,914	L12·8	82	16,400	L18·2
N. Klerksdorp	11	1,397	L2·2	D	110	12,032	L55·3	102	11,237	L85·0
Rand Leases	188	26,508	5·5	J	764	109,832	37·5	780	115,143	116·3
Village M.R.	29	4,093	L3·0	J	118	17,139	L15·1	118	18,946	4·6
Virginia O.F.S.	130	27,853	9·3	J	451	95,430	L151·3	532	122,697	53·1
Others										
N. Kleinfontein	80	10,227	2·5	D	790	101,724	6·9	828	107,561	30·9
Wit Nigel	20	4,435	5·7	J	80	17,735	21·4	74	17,525	20·8

Gold has been valued at 254s. 0d. (September 250s. 0d.) per oz. fine. L indicates loss. † Working Profit. * Working Profit includes sundry revenue. Table excludes profits from Uranium, Pyrite and Acid, and also production from Uranium divisions at Luipaards Vlei, Randfontein and W. Rand Consolidated.

ESTIMATED URANIUM REVENUE

Company	Year ends	Oct. Profit (£000)	This year (cum.) (£000)	Last year (cum.) (£000)	Company	Year ends	Oct. Profit (£000)	This year (cum.) (£000)	Last year (cum.) (£000)
Goldfields					**J.C.I.**				
Doornfontein	J	15·0	60·0	58·0	E. Champ d'Or (*b*)	D	6·2*	67·3*	68·3*
Luipaards Vlei (*a*)	J	90·0	360·0	373·0	Freddies Cons.	D	40·0*	324·0*	352·0*
Vogels	D	53·0	539·0	525·0	Govt. G.M.A.	D	23·0*	230·4*	221·6*
West Drie	J	49·0	196·0	200·0	Randfontein (*a*)	D	100·8*	1047·5*	1068·4*
Anglo American					**General Mining**				
Daggafontein	D	140·3	1406·0	1379·3	Buffelsfontein	J	209·0	847·0	847·0
P. Brand	S	42·2	42·2	44·8	Ellaton	D	15·0	168·0	180·0
P. Steyn	S	57·6	57·6	59·2	Stilfontein	D	85·0	886·0	857·0
Vaal Reefs	D	140·8	1416·1	1430·2	W. Rand Cons.(*a*)	D	202·7	2071·3	2017·7
Welkom	S	54·8	54·8	56·3	**Anglo Transvaal**				
West Reefs Ex.	D	160·4	1618·8	1590·7	Hartebeestfontein	J	243·0	985·0	1054·6
Central Mining					Loraine	S	35·0	35·0	36·0
Blyvoor	J	160·0	646·0	612·4	N. Klerksdorp	D	8·5	104·0	109·5
Harmony	J	253·2	1013·8	791·4	Virginia O.F.S.	J	177·8	688·7	707·0

Table includes profit from uranium acid and pyrite before loan redemption. (*a*) Total profit from uranium section (*b*) Overall profit. * Net revenue after provision for loan redemption.

Company News

A branch of the Cementation Group has been established in Australia. It will operate initially from Melbourne, and Mr. J. Carlile, the group's engineer in charge at Catagunya, Tasmania, will be manager of the Australian branch. Cementation Group is working on a contract in the Catagunya dam project, a stage in the Tasmanian hydro-electric commission's development of the Derwent river catchment.

*

Ferodo Ltd. are about to complete the purchase of a 50 acre site at Parciau Farm, Griffith's Crossing, 2 miles from Caernarvon and 7 miles from Bangor on the banks of the Menai Strait, for the erection of a new friction materials factory. The scheme has received the approval of the Board of Trade, and the development of the land for industrial purposes has been approved under Town and Country Planning legislation.

*

A contract for 6½ miles of specially designed conveyor belting for the U.S.S.R. has been won by the Belting Division of the Dunlop Rubber Co. Recent major exports of Dunlop's Belting Division include 16 miles of conveyor belting for the Durgapur steel mills in India, and 6 miles of large belting for the Nchanga copper mills in Northern Rhodesia.

*

The Council of the University of Leeds has announced the appointment of Dr. H. J. King as Professor of Mining. He succeeds Professor J. T. Whetton, who has had the title Emeritus Professor conferred upon him. The university has also announced the appointment of Mr. P. Kelly as lecturer in the department of metallurgy. The Department of Scientific and Industrial Research has awarded the university £7,000 over a period of three years for research into the electronic properties of metals and alloys.

*

The Metallurgical Society of the American Institute of Mining, Metallurgical and Petroleum Engineers has announced the election of Mr. John S. Smart, Jr., as president for 1961. Mr. Smart is general sales manager of the American Smelting and Refining Co., and he will take office on February 28, 1961, during the A.I.M.E. annual meeting in St. Louis, succeeding Dr. Carleton C. Long, director of research, zinc smelting division, St. Joseph Lead Co.

*

Mr. Donald C. Rubel, vice-president of the board of directors of City Trusts, has presented one of the 1960 John Scott Awards of the City of Philadelphia to Professor Frank A. Forward, head of the Department of Metallurgy at the University of British Columbia, Vancouver, for his invention of the Forward Process for extracting nickel and other metals from ore concentrates. The presentation took place on October 18, at a fellowship dinner of the Metallurgical Society of A.I.M.E. in Philadelphia.

A new factory for Holman-Iberica S.A. was recently opened at Pinto, near Madrid, by Mr. P. M. Holman, chairman of Holman Bros. Holman-Iberica was formed in 1957 by Holmans with their Spanish agents, Maclaurin Morrison y Cia S.A., and the latter company's associates, the Siberex Group.

*

The Purchasing Officers' Association announce that the following have been elected officers for the year 1960-61: president, Mr. W. H. Parry; executive vice-president, Mr. C. Russell; vice-presidents, Messrs. R. G. H. Dennis, R. C. Jacobs, G. M. Masson, N. McKee and H. F. Scudder; chairman, Mr. J. M. Grammar; vice-chairman, Mr. A. N. Meier; hon. treasurer, Mr. E. C. T. Humberstone.

*

Mr. N. J. Fuller has been appointed assistant sales manager of Goodyear Pumps Ltd., a company in the Holman Group. Mr. J. C. Reid has been appointed representative in Scotland.

*

Sigmund Pumps announce that Mr. H. I. S. Catherwood has joined the company as sales director. He succeeds Mr. H. P. Lord, who has been appointed managing director of International Boilers and Radiators, a sister company in the Brookers Group. Mr. Lord will continue to be a director of Sigmund Pumps.

*

Mr. Tom Hannaby has been appointed general sales manager of Mine Safety Appliances Co., Glasgow, and will assume responsibility for marketing the entire range of M.S.A. products, both at home and overseas.

*

Richard Sutcliffe Ltd., announce the appointment of Mr. Peter Whincup as manager of their mining division. Mr. Whincup is a past president of the Lancashire branch of the National Association of Colliery Managers.

*

Recursos Minerais do Brasil, by Sylvio Froes Abreu, which was reviewed in our columns last week, may be obtained from the Ministerio do Trabalho Industria e Comercio, Instituto Nacional de Tecnologia, Rio de Janeiro, Brazil.

*

The National Coal Board have appointed Mr. E. Keene to be industrial relations director of the North Eastern Division of the Board, in succession to Mr. J. V. Curry, who has resigned for health reasons.

*

Jubilee Iron Corporation of New Jersey announce the appointment of Mr. Francis J. Haller as a director and consultant to the firm.

*

Mr. Vincent N. Burnhart has been elected president of the E. J. Longyear Co., Minneapolis. He succeeds Mr. Donald M. Davidson, who died recently.

SENIOR MINING ENGINEER required by large Organization for overseas post. Knowledge of French an advantage. Free housing, life assurance, passages paid. Salary and other details of the appointment would be discussed at interview. Write full particulars of qualifications, experience and age to Box "J.R." c/o J. W. Vickers & Co. Ltd., 7/8 Great Winchester Street, London, E.C.2.

CHIEF MECHANICAL ENGINEER required for Iron Ore Mining Organization in Goa, Portuguese India, to take charge of the operation and maintenance of all machinery on the mines, which includes earth moving equipment vehicles, screening and crushing plant, conveyors and mechanical loading plant, diesel generators and electrical equipment and associated maintenance workshops.

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Rio Tinto Advanced Course Bursaries—£475-£675 (according to qualifications and experience), out of which fees must be paid, for a post-graduate diploma course of one session in Applied Geophysics, Mineral Exploration, Mineral Dressing or Mining. Candidates must hold an appropriate first degree.

Further particulars, and application forms (to be returned by March 31, 1961), obtainable from the Registrar, Imperial College, South Kensington, S.W.7.

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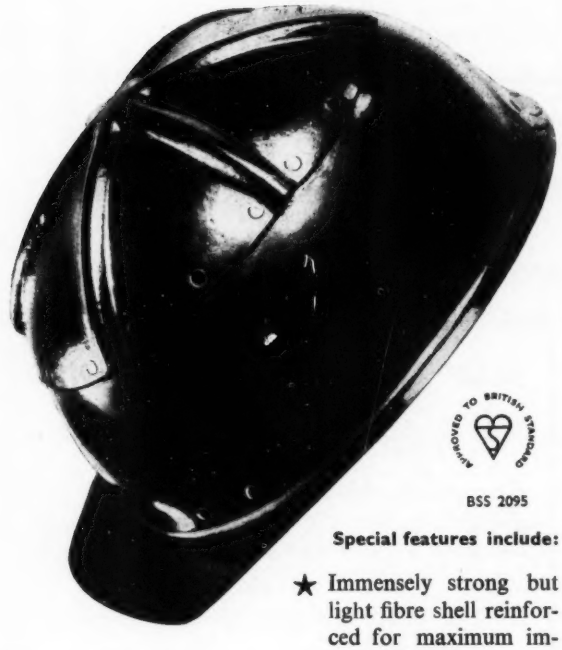

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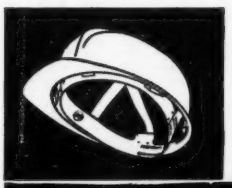

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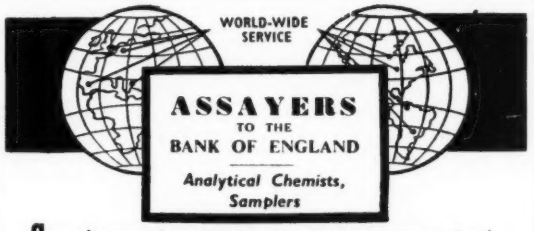

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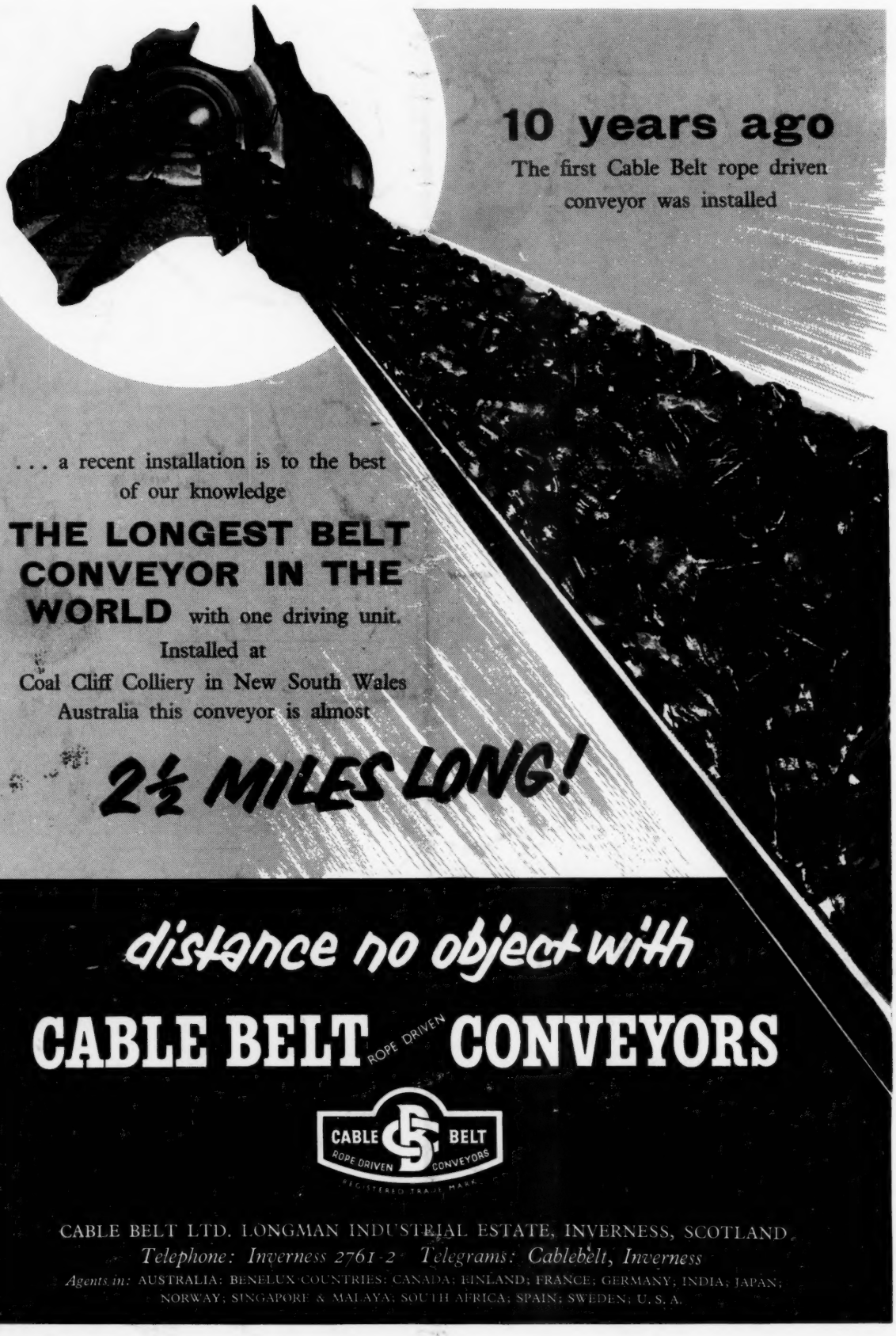

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